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Application Number	
Filing Date	October 7, 2014
First Named Inventor	Dunn
Title	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
Art Unit	
Examiner Name	
Attorney Docket Number	MAN2241-010J

SIGNATURE of Applicant or Patent Practitioner

Signature	/Tyler Dunham/	Date (Optional)	October 7, 2014
Name	Tyler Dunham	Registration Number	60364
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			
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SEC et al. v. MRI
SEC Exhibit 1014.0001
IPR2023-00255

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SIGNATURE of Applicant for Patent

Signature		Date	11/16/2012
Name	William Dunn		
Title	President		
Company	Manufacturing Resources International, Inc.		

Note: Signature - this form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below*.

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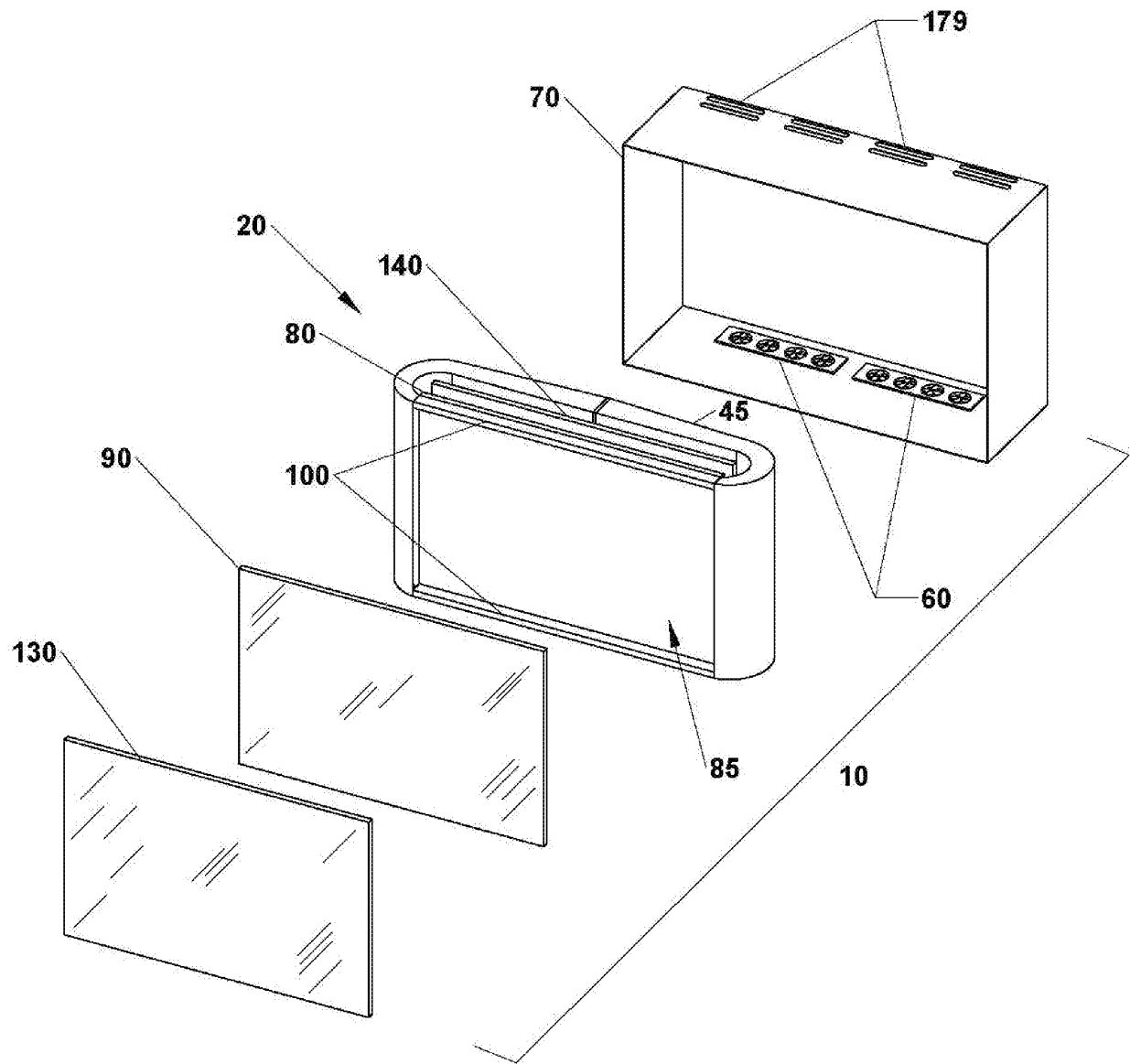


Fig. 1

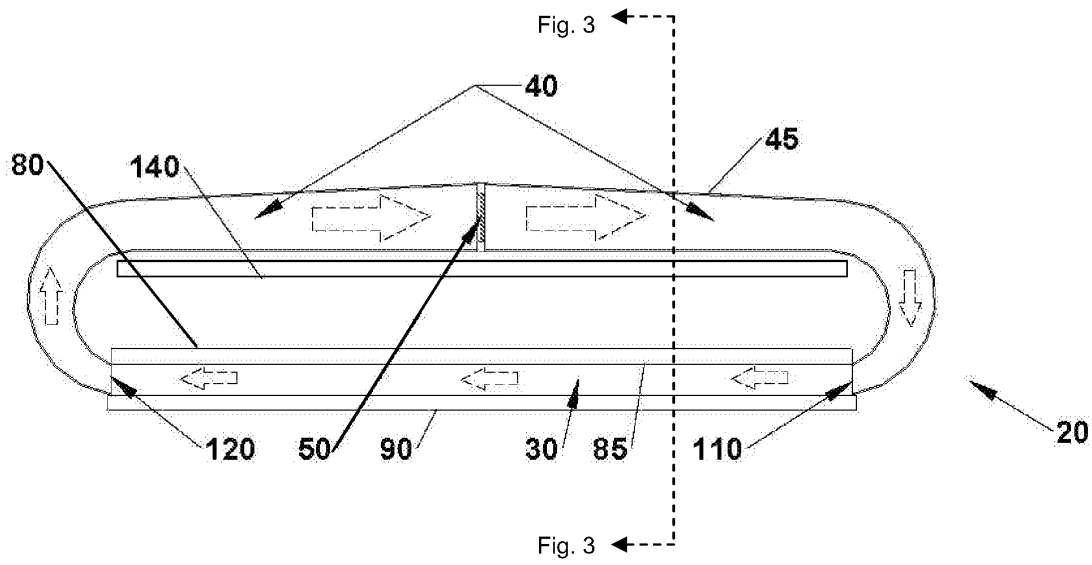


Fig. 2

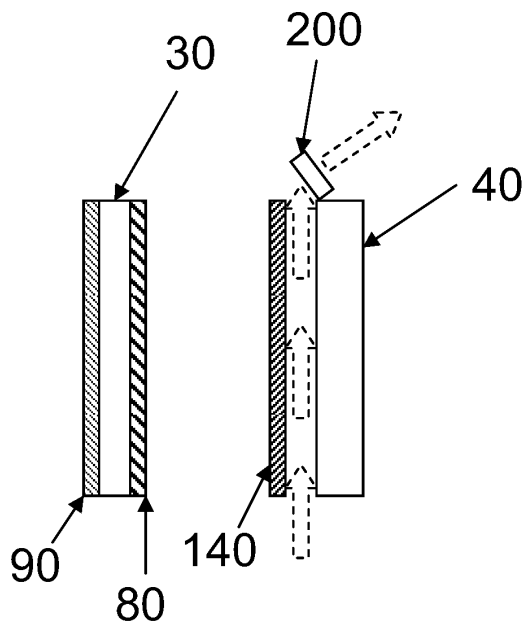


Fig. 3A

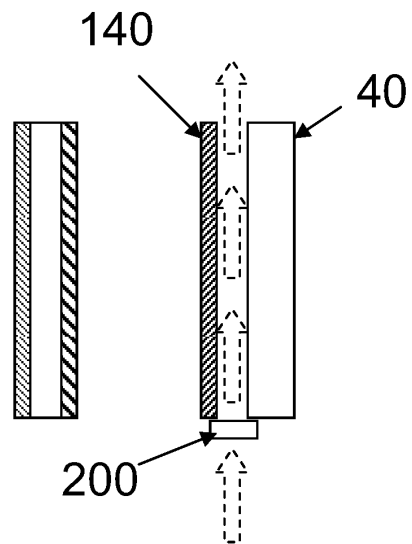


Fig. 3B

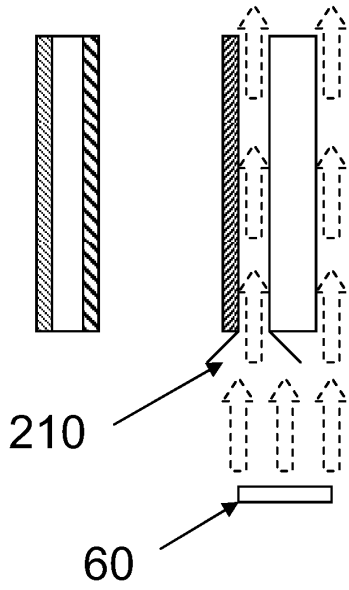


Fig. 3C

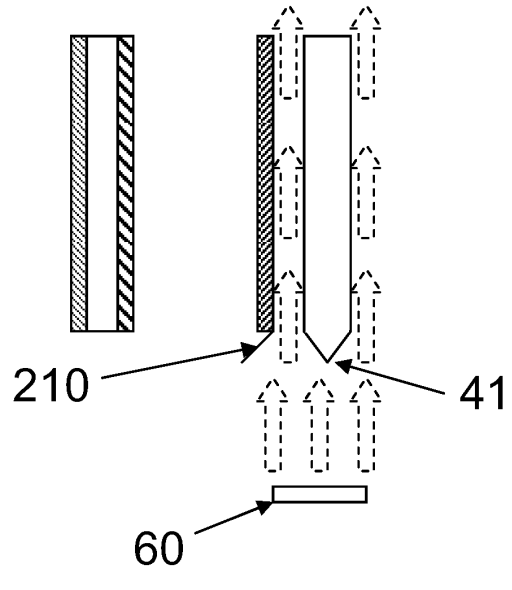


Fig. 3D

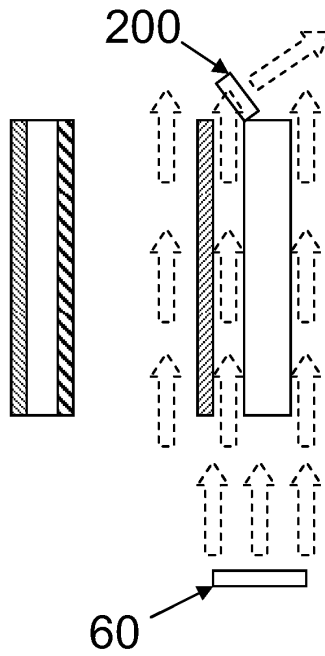


Fig. 3E

System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate

Inventor: William Dunn

Cross-Reference to Related Applications

[0001] This application is a continuation of U.S. Application No. 14/803,848 filed on July 20, 2015, now U.S. Patent 9,370,127 issued June 14, 2016. U.S. Application No. 14/803,848 is a continuation of U.S. Application No. 14/508,767 filed on October 7, 2014, now U.S. Patent 9,089,079 issued July 21, 2015. U.S. Application No. 14/508,767 is a continuation of U.S. Application No. 13/937,777 filed on July 9, 2013, now U.S. Patent 8,854,572 issued October 7, 2014. U.S. Application No. 13/937,777 is a continuation of U.S. Application No. 13/605,530 filed on September 6, 2012, now U.S. Patent 8,482,695 issued July 9, 2013. U.S. Application No. 13/605,530 is a continuation of U.S. Application No. 12/620,330 filed on November 17, 2009, now U.S. Patent 8,274,622 issued September 25, 2012, which is a non-provisional application of U.S. Application No. 61/115,333 filed November 17, 2008. U.S. Application No. 12/620,330 is also continuation-in-part of U.S. Application No. 12/411,925 filed March 26, 2009, now U.S. Patent 8,854,595 issued October 7, 2014, which is a non-provisional application of U.S. Provisional Application No. 61/039,454 filed March 26, 2008. U.S. Application No. 12/620,330 is also a continuation-in-part of U.S. Application No. 12/556,029 filed September 9, 2009, now U.S. Patent 8,373,841 issued February 12, 2013, which is a non-provisional application of U.S. Provisional Application No. 61/095,615 filed September 9, 2008. U.S. Application No. 12/620,330 is also a continuation-in-part of U.S. Application No. 12/234,307 filed September 19, 2008, now U.S. Patent 8,767,165 issued

July 1, 2014, which is a non-provisional application of U.S. Provisional Application No. 61/033,064 filed March 3, 2008. U.S. Application No. 12/620,330 is also a continuation-in-part of U.S. Application No. 12/234,360 filed September 19, 2008, which is a non-provisional application of U.S. Provisional Application No. 61/053,713 filed May 16, 2008. U.S. Application No. 12/620,330 is also a continuation-in-part of U.S. Application No. 12/237,365, filed September 24, 2008, now U.S. Patent 8,879,042 issued November 4, 2014, which is a non-provisional application of U.S. Provisional Application No. 61/057,599 filed May 30, 2008. U.S. Application No. 12/620,330 is also a continuation-in-part of U.S. Application No. 12/235,200 filed September 22, 2008, which is a non-provisional application of U.S. Provisional Application No. 61/076,126 filed June 26, 2008. All aforementioned applications are hereby incorporated by reference in their entirety as if fully cited herein.

Technical Field

[0002] Exemplary embodiments generally relate to cooling systems for electronic displays.

Background of the Art

[0003] Conductive and convective heat transfer systems for electronic displays are known. These systems of the past generally attempt to remove heat from the electronic components in a display through as many sidewalls of the display as possible. While such heat transfer systems have enjoyed a measure of success in the past, improvements to displays require even greater cooling capabilities.

[0004] In particular, cooling devices for electronic displays of the past have generally used convective heat dissipation systems that function to cool an entire interior of the display by one or more fans and fins, for example. By itself, this is not adequate in many climates, especially when radiative heat transfer from the sun through a display window becomes a major factor. In many applications and locations 200 Watts or more of power through such a display window is common. Additionally, modern applications call for larger displays than previous applications. For example, some outdoor applications call for forty-seven inch screens and above. With increased heat production from the larger screens and radiative heat transfer from the sun through the display window, more efficient and powerful heat dissipation systems are required.

Summary of the Exemplary Embodiments

[0005] A large fluctuation in temperature is common in the devices of the past. Such temperature fluctuation adversely affects the electronic components in these devices. Whereas the systems of the past attempted to remove heat only through the non-display sides and rear components of the enclosure surrounding the electronic display components, a preferred embodiment causes convective heat transfer from the face of the display as well. By the aspects described below, exemplary embodiments have made consistent cooling possible for electronic displays having screens of sizes greater than or equal to twelve inches. For example, cooling of a 55 inch screen can be achieved, even in extremely hot climates. Greater cooling capabilities are provided by the device and method described and shown in more detail below.

[0006] An exemplary embodiment relates to an isolated gas cooling system and a method for cooling an electronic display. An exemplary embodiment includes an isolated gas cooling chamber. The gas cooling chamber is preferably a closed loop which includes a first gas chamber comprising a transparent anterior plate and a second gas chamber comprising a cooling plenum.

[0007] The first gas chamber is anterior to and coextensive with the viewable face of the electronic display surface. The transparent anterior plate may be set forward of the electronic display surface by spacers defining the depth of the first gas chamber. A cooling chamber fan, or equivalent means, maybe located within the cooling plenum. The fan may be used to propel gas around the isolated gas cooling chamber loop. As the gas traverses the first gas chamber it contacts the electronic display surface, absorbing heat from the surface of the display. Because the gas and the relevant surfaces of the first gas chamber are transparent, the image quality would preferably remain excellent. After the gas has traversed the transparent first gas chamber, the gas may be directed into the rear cooling plenum.

[0008] In order to cool the gas in the plenum, external convective or conductive means may be employed. In at least one embodiment, an external fan unit may also be included within the housing of the display. The external fan unit may be positioned to provide a flow of ingested air over the external surfaces of the plenum. The heated air in the housing may exit the housing as exhaust.

[0009] The two chambers of the closed loop plenum encircle the electronic display. Within electronic displays is typically a backlight, especially in liquid crystal displays (LCD). The backlight can be a significant source of heat for the electronic display.

Exemplary embodiments position the backlight sufficiently close to the wall of the cooling plenum so that convective heat transfer from the backlight can be increased. The external fan may force air between the plenum and the backlight or air may be pulled from the top of the display using an additional fan unit. Alternatively, a combination of both fans may be employed.

[0010] The foregoing and other features and advantages of the present invention will be apparent from the following more detailed description of the particular embodiments of the invention, as illustrated in the accompanying drawings.

Brief Description of the Drawings

[0011] A better understanding of an exemplary embodiment will be obtained from a reading of the following detailed description and the accompanying drawings wherein identical reference characters refer to identical parts and in which:

[0012] FIGURE 1 is an exploded perspective view of an exemplary embodiment showing components of the isolated gas cooling system.

[0013] FIGURE 2 is top sectional view of an exemplary embodiment of the cooling chamber.

[0014] FIGURES 3A-3E are cross sectional views of exemplary embodiments using constricted convection cooling.

Detailed Description

[0015] FIGURE 1 is an exploded view of an exemplary embodiment of the closed loop cooling system. This system is fully described in co-pending U.S. application Nos. 61/033064 and 61/053713 herein incorporated by reference in their entirety.

[0016] It is to be understood that the disclosed embodiments includes the cooling of displays including, but not limited to LCDs. By way of example and not by way of limitation, the exemplary embodiments may be used in conjunction with displays selected from among LCD (including TFT or STN type), light emitting diode (LED), organic light emitting diode (OLED), field emitting display (FED), cathode ray tube (CRT), and plasma displays. Furthermore, embodiments may be used with displays of other types including those not yet discovered. In particular, it is contemplated that the exemplary embodiments may be well suited for use with full color, flat panel OLED displays. While the embodiments described herein are well suited for outdoor environments, they may also be appropriate for indoor applications (e.g., factory environments) where thermal stability of the display may be at risk.

[0017] An exemplary embodiment 10 of the electronic display and gas cooling system includes an isolated gas cooling chamber 20 contained within an electronic display housing 70. A narrow transparent first gas chamber may be defined by spacers 100 and transparent front plate 90. A second transparent front plate 130 may be laminated to front plate 90 to help prevent breakage of transparent plate 90. Cooling chamber 20 surrounds an electronic display 80 (in this case an LCD stack) and associated backlight panel 140 (although some embodiments may not require a backlight panel).

[0018] The gas cooling system 10 may include means for cooling gas contained within the cooling plenum 45. This means may include a fan 60 which may be positioned at the

base of the display housing 70. The fan will force the cooler ingested air over at least one external surface of a posterior cooling plenum 45. If desired, an air conditioner (not shown) may also be utilized to cool the air which contacts the external surface of plenum 45. This air may be the same air that is forced between the backlight 145 and the surface of the plenum 45 in order to further cool the backlight 145.

[0019] Referring to FIGURE 2, in at least one embodiment the isolated gas cooling chamber 20 comprises a closed loop which includes a first gas chamber 30 and a rear cooling chamber 40. The first gas chamber includes a transparent plate 90. The second gas chamber comprises a cooling plenum 45. The term “isolated gas” refers to the fact that the gas within the isolated gas cooling chamber 20 is essentially isolated from external air in the housing of the display. Because the first gas chamber 30 is positioned in front of the display image, the gas should be substantially free of dust or other contaminants that might negatively affect the display image.

[0020] The isolated gas may be almost any transparent gas, for example, normal air, nitrogen, helium, or any other transparent gas. The gas is preferably colorless so as not to affect the image quality. Furthermore, the isolated gas cooling chamber need not necessarily be hermetically sealed from the external air. It is sufficient that the gas in the chamber is isolated to the extent that dust and contaminants may not substantially enter the first gas chamber.

[0021] The first gas chamber 30 is in gaseous communication with the rear cooling chamber 40. A cooling chamber fan 50 may be provided within the posterior plenum 45. The cooling fan 50 may be utilized to propel gas around the isolated gas cooling chamber 20. The first gas chamber 30 includes at least one transparent plate 90

mounted in front of an electronic display surface 85. The transparent plate 90 may be set forward from the electronic display surface 85 by spacers 100. The spacing members 100 define the depth of the narrow channel passing in front of the electronic display surface 85. The spacing members 100 may be independent or alternatively may be integral with some other component of the device (e.g., integral with the front plate). The electronic display surface 85, the spacing members, and the transparent front plate 90 define a narrow first gas chamber 30. The chamber 30 is in gaseous communication with plenum 45 through entrance opening 110 and exit opening 120.

[0022] FIGURE 3A shows a cross-sectional view of the section that is shown in Figure 2. Towards the front of the display is the first gas chamber 30 which abuts against the electronic display 80. In front of the first gas chamber 30 is the transparent plate 90. Towards the rear of the display, the backlight 140 is placed in close proximity to the posterior rear cooling chamber 40. The close proximity of these two elements, in part, creates the constricted convection cooling of the backlight 140. One or more constricted convection fans 200 may be used to draw air between the backlight 140 and the rear cooling chamber 40. It has been found that forcing air through a smaller space increases the cooling abilities of the system. The distance between the backlight 140 and the rear cooling chamber 40 may vary depending on many factors, including but not limited to: the size of the display, the design of the backlight assembly, the desired operating environment, and the size and speed of the selected constricted convection fans. An ideal distance may be between 0.25 and 1.25 inches. Alternatively, an ideal distance may be between 0.33 and 2.5 inches. Larger distances may be preferable, depending at least upon the many factors listed above.

[0023] The backlight may comprise a printed circuit board (PCB) with a plurality of lights mounted to the side facing the electronic display 80. The lights in the backlight may be any one of the following: LED's, organic light emitting diodes (OLED), field emitting display (FED), light emitting polymer (LEP), or organic electro-luminescence (OEL) lights. In an exemplary embodiment, the backlight 140 would ideally have a low level of thermal resistance between the side facing the electronic display 80 and the side facing the cooling plenum. To accomplish this low level of thermal resistance, the backlight 140 may be built using metal printed circuit board (PCB) technology to further transfer heat away from the lights. The rear surface of the backlight 140 may also be metallic, or some other thermally conductive material, to further enhance the convective heat transferring properties. The surface may even have a plurality of surface features such as fins to further enhance the convective heat transferring properties. The constricted convection fan 200 may then send the warm air out of an exhaust 179 (shown in Figure 1) so that it may exit the display housing entirely.

[0024] FIGURE 3B shows another cross-sectional view of another embodiment for the constricted convection setup. In this embodiment, the constricted convection fan 200 is used to push air between the backlight 140 and the rear cooling chamber 40. FIGURE 3C shows an embodiment without the constricted convection fan, but instead uses the fan 60 which draws air from outside the display housing. As noted above, this air may simply be ambient air or alternatively this air may come from a conditioning unit (not shown). To facilitate the flow of air between the backlight 140 and the rear cooling chamber 40, a guiding device 210 may be used.

[0025] FIGURE 3D shows another embodiment, where the rear cooling chamber 40 contains a guiding feature 41, which is used in combination with the guiding device 210 to facilitate the flow of air between the backlight and the cooling chamber. FIGURE 3E shows another embodiment, where both the fan 60 and the constricted convection fan 200 is used. This embodiment could also utilize a version of the guiding devices shown in Figures 3C and 3D.

[0026] While the display is operational, the fan 60 and the constricted convection fan 200 may run continuously. However, if desired, a temperature sensor (not shown) and a switch or microcontroller (not shown) may be incorporated within the electronic display. This effective thermostat may be used to detect when temperatures have reached a predetermined threshold value. In such a case, the various fans may be selectively engaged when the temperature in the display reaches a predetermined value. Predetermined thresholds may be selected and the system may be configured with a thermostat (not shown) to advantageously keep the display within an acceptable temperature range. This would save on both energy costs as well as the useful lifetime of the devices.

[0027] An optional air filter (not shown) may be employed within the plenum to assist in preventing contaminants and dust from entering the first gas chamber 30. An air filter could also be used to prevent fan 60 from drawing in particulates from either the surrounding environment or the conditioning unit.

[0028] It should be noted, that some embodiments may not use display technology that requires a backlight. For these types of displays, the electronic display 80 would be placed anterior to the rear cooling chamber 40 (rather than the backlight 140). For

example, an OLED may be placed anterior to the rear cooling chamber 40 so that cooling air could be forced between the posterior surface of the OLED and the rear cooling chamber 40.

[0029] Having shown and described the preferred embodiments, those skilled in the art will realize that many variations and modifications may be made to affect the embodiments and still be within the scope of the claimed invention. Additionally, many of the elements indicated above may be altered or replaced by different elements which will provide the same result and fall within the spirit of the claimed invention. It is the intention, therefore, to limit the invention only as indicated by the scope of the claims.

CLAIMS

I claim:

1. An electronic display assembly comprising:
 - a housing;
 - an electronic display positioned within the housing;
 - wherein the electronic display is cooled by a combination of a closed loop of isolated gas and an open loop of ambient air which passes through the housing.
2. The electronic display assembly of claim 1 wherein:
 - the isolated gas cools a front surface of the electronic display while the ambient air cools a rear surface of the electronic display.
3. The electronic display assembly of claim 2 wherein:
 - the rear surface of the electronic display comprises the rear surface of an LED backlight.
4. The electronic display assembly of claim 1 wherein:
 - the closed loop of isolated gas is not permitted to mix with the open loop of ambient air.
5. The electronic display assembly of claim 1 wherein:
 - the closed loop of isolated gas flows in a direction that is substantially perpendicular to the direction in which the open loop of ambient air flows.
6. The electronic display assembly of claim 1 wherein:
 - the closed loop of isolated gas forms a continuous loop and the open loop of ambient air flows through the loop.

7. The electronic display assembly of claim 1 wherein:
the closed loop of isolated gas is substantially horizontal while the open loop of ambient air is substantially vertical.
8. The electronic display assembly of claim 1 wherein:
the closed loop of isolated gas is partially defined by a sealed rear plenum that does not allow open loop ambient air to enter the plenum.
9. The electronic display assembly of claim 8 further comprising:
one or more electronic devices for operating the electronic display positioned within the sealed plenum.
10. The electronic display assembly of claim 1 wherein:
the electronic display is a liquid crystal display.
11. The electronic display assembly of claim 1 wherein:
the closed loop of isolated gas is substantially prohibited from exiting the housing.
12. An electronic display assembly comprising:
a housing;
a liquid crystal display (LCD) positioned within the housing and having a backlight;
wherein the electronic display is cooled by a combination of a closed loop of isolated gas which circulates within the housing and an open loop of ambient air which passes through the housing and along the backlight.
13. The electronic display assembly of claim 12 wherein:
the isolated gas cools a front surface of the LCD.
14. The electronic display assembly of claim 12 further comprising:

a rear cooling chamber positioned behind the LCD and containing the closed loop of isolated gas; and
wherein the open loop ambient air contacts an exterior surface of the chamber, but is not permitted to enter the chamber.

15. The electronic display assembly of claim 12 further comprising:
one or more electronic components for driving the LCD positioned within the rear cooling chamber.
16. The electronic display assembly of claim 12 wherein:
the open loop of ambient air contacts an exterior surface of the rear cooling chamber while the closed loop of isolated gas contacts an interior surface of the rear cooling chamber.
17. The electronic display assembly of claim 12 further comprising:
the closed loop of isolated gas flows in a direction that is substantially perpendicular to the direction in which the open loop of ambient air flows.
18. An electronic display assembly comprising:
a housing;
an electronic display positioned within the housing;
a rear cooling chamber positioned behind the electronic display and containing an electrical component which is electrically connected to the electronic display;
a front surface on the electronic display which faces an intended viewer and a rear surface on the electronic display which opposes the front surface;
wherein the front surface of the electronic display is cooled by a closed loop of isolated gas and the rear surface of the electronic display is cooled by an open loop of ambient air.
19. The electronic display assembly of claim 18 wherein:

the open loop of ambient air passes through the housing without mixing with the closed loop of isolated gas.

20. The electronic display assembly of claim 18 wherein:

the open loop of ambient air passes between the rear surface of the electronic display and an exterior surface of the rear cooling chamber.

ABSTRACT

An electronic display assembly is disclosed herein. An electronic display may be positioned within a housing where the display is cooled by a combination of airflows. A closed loop of isolated gas may be used with an open loop of ambient air which passes through the housing in order to cool the display. Preferably, the closed loop of isolated gas cools the front surface of the display while the open loop of ambient air cools the rear surface of the display. Preferably, the closed loop of isolated gas is not permitted to mix with the open loop of ambient air.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
First Named Inventor/Applicant Name:		William DUNN		
Filer:		Tyler Steven Dunham/Kimberly Hefner		
Attorney Docket Number:		MAN2241-010L		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1600

Electronic Acknowledgement Receipt	
EFS ID:	26041923
Application Number:	15180968
International Application Number:	
Confirmation Number:	7433
Title of Invention:	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
First Named Inventor/Applicant Name:	William DUNN
Customer Number:	8698
Filer:	Tyler Steven Dunham/Kimberly Hefner
Filer Authorized By:	Tyler Steven Dunham
Attorney Docket Number:	MAN2241-010L
Receipt Date:	13-JUN-2016
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Payment Type	Deposit Account
Payment was successfully received in RAM	\$1600
RAM confirmation Number	4604
Deposit Account	194076
Authorized User	Hefner, Kimberly
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WebADS.pdf	177326	no	10
			ccc3babe3118f1312506255e82999169abb250ec		
Warnings:					
Information:					
2	Oath or Declaration filed	20131205_DecAssign_MAN2241-0101.pdf	176908	no	2
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Warnings:					
Information:					
3	Power of Attorney	20141007_POA_MAN2241-0101.pdf	234103	no	2
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4	Drawings-only black and white line drawings	20160613_Draw_MAN2241-0101.pdf	256446	no	3
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	Document Description		Start	End	
	Specification		1	11	
	Claims		12	15	
	Abstract		16	16	
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6	Fee Worksheet (SB06)	fee-info.pdf	35066	no	2
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	William		DUNN	
Residence Information (Select One)		☒ US Residency ☐ Non US Residency ☐ Active US Military Service		
City	Alpharetta	State/Province	GA	Country of Residence ⁱ US
Mailing Address of Inventor:				
Address 1	6415 Shiloh Road East			
Address 2				
City	Alpharetta	State/Province	GA	
Postal Code	30005	Country ⁱ	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	8698
Email Address	standleydocketing@standleyllp.com Add Email Remove Email

Application Information:

Title of the Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
Attorney Docket Number	MAN2241-010L	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:						☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number		08698						
Prefix	Given Name	Middle Name	Family Name	Suffix	Remove			
Registration Number								
Prefix	Given Name	Middle Name	Family Name	Suffix	Remove			
Registration Number								
Additional Representative Information blocks may be generated within this form by selecting the Add button.								

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the application number blank.

Prior Application Status		Pending		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
	Continuation of	14803848	2015-07-20		
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14803848	Continuation of	14508767	2014-10-07	9089079	2015-07-21
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14508767	Continuation of	13937777	2013-07-09	8854572	2014-10-07
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13937777	Continuation of	13605530	2012-09-06	8482695	2013-07-09
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13605530	Continuation of	12620330	2009-11-17	8274622	2012-09-25
Prior Application Status		Pending		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12620330	Claims benefit of provisional	61115333	2008-11-17		
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12620330	Continuation in part of	12234307	2008-09-19	8767165	2014-07-01

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12234307	Claims benefit of provisional	61033064	2008-03-03		
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12620330	Continuation in part of	12234360	2008-09-19		
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12234360	Claims benefit of provisional	61053713	2008-05-16		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12620330	Continuation in part of	12237365	2008-09-24	8879042	2014-11-04
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12237365	Claims benefit of provisional	61057599	2008-05-30		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12620330	Continuation in part of	12411925	2009-03-26	8854595	2014-10-07
Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12411925	Claims benefit of provisional	61039454	2008-03-26		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Prior Application Status	Abandoned		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12620330	Continuation in part of	12235200	2008-09-22		
Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12235200	Claims benefit of provisional	61076126	2008-06-26		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12620330	Continuation in part of	12556029	2009-09-09	8373841	2013-02-12
Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12556029	Claims benefit of provisional	61095615	2008-09-09		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

[Clear](#)

- | | | |
|---|--|--------------------------------------|
| ☒ Assignee | ☐ Legal Representative under 35 U.S.C. 117 | ☐ Joint Inventor |
| ☐ Person to whom the inventor is obligated to assign. | ☐ Person who shows sufficient proprietary interest | |

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name Manufacturing Resources International, Inc.

Mailing Address Information For Applicant:

Address 1		6415 Shiloh Road East	
Address 2			
City		Alpharetta	State/Province GA
Country ¹	US	Postal Code	30005
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	MAN2241-010L
		Application Number	
Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Tyler S. Dunham/			Date (YYYY-MM-DD)	
First Name	Tyler	Last Name	Dunham	Registration Number	60364
Additional Signature may be generated within this form by selecting the Add button.					

**COMBINED ASSIGNMENT AND DECLARATION (37 CFR 1.63) FOR UTILITY OR
DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
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DECLARATION

As the below named inventor, I hereby declare that:

This declaration ☐ The attached application, or
is directed to: ☒ United States application or PCT international application number
13/937,777 filed on 09-JUL-2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C.
1001 by fine or imprisonment of not more than five (5) years, or both.

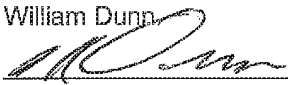
ASSIGNMENT

For at least one U.S. dollar (\$1.00) and for other good and valuable consideration, the receipt of which is hereby
acknowledged, I hereby sell, assign and transfer to Manufacturing Resources International, Inc., a corporation
organized under the law of the State of Georgia having an office at 6415 Shiloh Road East, Alpharetta, GA
30005, (hereinafter referred to as the Assignee) my entire right, title and interest, together with all rights of priority,
in and to the invention set forth in the above-identified application. I further hereby sell, assign and transfer to
the Assignee my entire right, title and interest, together with all rights of priority, in and to my invention as
described and/or claimed in any and all applications for patents based on the invention, including divisionals,
continuations, renewals, substitutes and reissues thereof, and all rights of priority resulting from any of these
patent applications, as well as all foreign counterparts and extensions thereof, together with all patents issuing on
any of these applications for the full terms of all of the patents which may be granted on the invention.

I authorize the Assignee to make applications for, to prosecute such applications, and to receive patents for the
invention in the United States and any foreign countries, in the Assignee's name.

I promise and agree that I will execute or procure any further necessary assurance of title to the invention and
any patents which may issue on the invention. I will, at any time, upon the request and without further
consideration, but at the expense of the Assignee, deliver any testimony in any legal proceedings and execute all
papers and do all other things that may be necessary or desirable to perfect the title to the invention, or any
patents which may be granted therefor, to the Assignee, its successors, assigns, or other legal representatives. I
will, at any time, upon the request and at the expense of the Assignee, execute any continuations, divisionals,
reissues, or any other additional applications for patents for the invention or any part or parts thereof and any
patents issuing thereon are hereby assigned to the Assignee. I will make all rightful oaths, and do all lawful acts
required for procuring and enforcing any of the patents, without further compensation, but at the expense of the
Assignee, its successors, assigns or other legal representatives.

I authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the

United States for the invention, resulting from any of the aforesaid applications to the Assignee.	
LEGAL NAME OF INVENTOR	
Inventor: William Dunn	
Signature: 	Date: 12-2-13
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional form for each additional inventor.	

Advice from Standley Law Group LLP: It is advisable to obtain two witness signatures to the above inventor signature in the places indicated below, OR in the alternative, it is advisable to obtain a notarization of the above inventor signature in the notary section set forth below. With or without the witness signatures or the notarization, this assignment is a legally binding agreement to assign the invention to the assignee.

Optional (but advisable) witness signatures:

Witness One

Printed Full Legal Name: _____

Signature: _____

Date: _____

Witness Two

Printed Full Legal Name: _____

Signature: _____

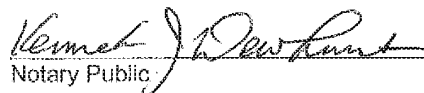
Date: _____

Or, optional (but advisable) notarization:

STATE OF Georgia :
COUNTY OF Chubb : SS.

Before me personally appeared William Dunn, to me known to be the same person described in and who executed the foregoing instrument, and acknowledged that he/she executed the same, of his/her own free will and for the purposes set forth. Sworn to before me and subscribed in my presence this 2nd day of December, 2013.

(seal)


Notary Public

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT3915485

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
WILLIAM DUNN	12/02/2013
RECEIVING PARTY DATA	
Name:	MANUFACTURING RESOURCES INTERNATIONAL, INC.
Street Address:	6415 SHILOH ROAD EAST
City:	ALPHARETTA
State/Country:	GEORGIA
Postal Code:	30005
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	15180968
CORRESPONDENCE DATA	
Fax Number:	(614)792-5536
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	6147925555
Email:	standleydocketing@standleyllp.com
Correspondent Name:	STANDLEY LAW GROUP LLP
Address Line 1:	6300 RIVERSIDE DRIVE
Address Line 4:	DUBLIN, OHIO 43017
ATTORNEY DOCKET NUMBER:	MAN2241-010L
NAME OF SUBMITTER:	TYLER S. DUNHAM
SIGNATURE:	/Tyler S. Dunham/
DATE SIGNED:	06/13/2016
This document serves as an Oath/Declaration (37 CFR 1.63).	
Total Attachments: 2	
source=20131205_DecAssign_MAN2241-010I#page1.tif	
source=20131205_DecAssign_MAN2241-010I#page2.tif	

**COMBINED ASSIGNMENT AND DECLARATION (37 CFR 1.63) FOR UTILITY OR
DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
-------------------------------	--

DECLARATION

As the below named inventor, I hereby declare that:

This declaration ☐ The attached application, or
is directed to: ☒ United States application or PCT international application number
13/937,777 filed on 09-JUL-2013.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C.
1001 by fine or imprisonment of not more than five (5) years, or both.

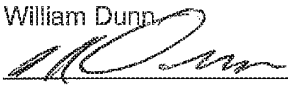
ASSIGNMENT

For at least one U.S. dollar (\$1.00) and for other good and valuable consideration, the receipt of which is hereby
acknowledged, I hereby sell, assign and transfer to Manufacturing Resources International, Inc., a corporation
organized under the law of the State of Georgia having an office at 6415 Shiloh Road East, Alpharetta, GA
30005, (hereinafter referred to as the Assignee) my entire right, title and interest, together with all rights of priority,
in and to the invention set forth in the above-identified application. I further hereby sell, assign and transfer to
the Assignee my entire right, title and interest, together with all rights of priority, in and to my invention as
described and/or claimed in any and all applications for patents based on the invention, including divisionals,
continuations, renewals, substitutes and reissues thereof, and all rights of priority resulting from any of these
patent applications, as well as all foreign counterparts and extensions thereof, together with all patents issuing on
any of these applications for the full terms of all of the patents which may be granted on the invention.

I authorize the Assignee to make applications for, to prosecute such applications, and to receive patents for the
invention in the United States and any foreign countries, in the Assignee's name.

I promise and agree that I will execute or procure any further necessary assurance of title to the invention and
any patents which may issue on the invention. I will, at any time, upon the request and without further
consideration, but at the expense of the Assignee, deliver any testimony in any legal proceedings and execute all
papers and do all other things that may be necessary or desirable to perfect the title to the invention, or any
patents which may be granted therefor, to the Assignee, its successors, assigns, or other legal representatives. I
will, at any time, upon the request and at the expense of the Assignee, execute any continuations, divisionals,
reissues, or any other additional applications for patents for the invention or any part or parts thereof and any
patents issuing thereon are hereby assigned to the Assignee. I will make all rightful oaths, and do all lawful acts
required for procuring and enforcing any of the patents, without further compensation, but at the expense of the
Assignee, its successors, assigns or other legal representatives.

I authorize and request the Commissioner of Patents and Trademarks to issue any and all Letters Patent of the

United States for the invention, resulting from any of the aforesaid applications to the Assignee.	
LEGAL NAME OF INVENTOR	
Inventor: William Dunn	
Signature: 	Date: 12-2-13
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional form for each additional inventor.	

Advice from Standley Law Group LLP: It is advisable to obtain two witness signatures to the above inventor signature in the places indicated below, OR in the alternative, it is advisable to obtain a notarization of the above inventor signature in the notary section set forth below. With or without the witness signatures or the notarization, this assignment is a legally binding agreement to assign the invention to the assignee.

Optional (but advisable) witness signatures:

Witness One

Printed Full Legal Name: _____

Signature: _____

Date: _____

Witness Two

Printed Full Legal Name: _____

Signature: _____

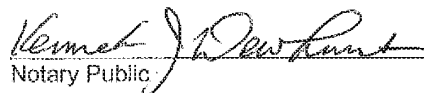
Date: _____

Or, optional (but advisable) notarization:

STATE OF Georgia :
COUNTY OF Chubb : SS.

Before me personally appeared William Dunn, to me known to be the same person described in and who executed the foregoing instrument, and acknowledged that he/she executed the same, of his/her own free will and for the purposes set forth. Sworn to before me and subscribed in my presence this 2nd day of December, 2013.

(seal)


Notary Public



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/180,968	06/13/2016	2621	1600	MAN2241-010L	20	3

CONFIRMATION NO. 7433

FILING RECEIPT



000000084100069

8698
STANDLEY LAW GROUP LLP
6300 Riverside Drive
Dublin, OH 43017

Date Mailed: 07/06/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

William DUNN, Alpharetta, GA;

Applicant(s)

Manufacturing Resources International, Inc., Alpharetta, GA;

Power of Attorney: The patent practitioners associated with Customer Number 08698

Domestic Priority data as claimed by applicant

This application is a CON of 14/803,848 07/20/2015 PAT 9370127
which is a CON of 14/508,767 10/07/2014 PAT 9089079
which is a CON of 13/937,777 07/09/2013 PAT 8854572
which is a CON of 13/605,530 09/06/2012 PAT 8482695
which is a CON of 12/620,330 11/17/2009 PAT 8274622
which claims benefit of 61/115,333 11/17/2008
and is a CIP of 12/234,307 09/19/2008 PAT 8767165
which claims benefit of 61/033,064 03/03/2008
and said 12/620,330 11/17/2009
is a CIP of 12/234,360 09/19/2008
which claims benefit of 61/053,713 05/16/2008
and said 12/620,330 11/17/2009
is a CIP of 12/237,365 09/24/2008 PAT 8879042
which claims benefit of 61/057,599 05/30/2008
and said 12/620,330 11/17/2009
is a CIP of 12/411,925 03/26/2009 PAT 8854595
which claims benefit of 61/039,454 03/26/2008
and said 12/620,330 11/17/2009
is a CIP of 12/235,200 09/22/2008 ABN

which claims benefit of 61/076,126 06/26/2008
and said 12/620,330 11/17/2009
is a CIP of 12/556,029 09/09/2009 PAT 8373841
which claims benefit of 61/095,615 09/09/2008

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/30/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/180,968**

Projected Publication Date: 10/13/2016

Non-Publication Request: No

Early Publication Request: No

Title

System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate

Preliminary Class

345

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application

page 2 of 4

serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/180,968			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA		RATE(\$)	FEE(\$)				
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A		N/A	280		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A		N/A	600		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A		N/A	720		
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 =	*			x 80 =	0.00		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 =	*			x 420 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00		
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1600		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	x	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	x	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE			TOTAL ADD'L FEE		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	x	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	x	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
				TOTAL ADD'L FEE			TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/180,968	06/13/2016	William DUNN	MAN2241-010L	7433
8698 7590 09/22/2016 STANDLEY LAW GROUP LLP 6300 Riverside Drive Dublin, OH 43017			EXAMINER KIM, RICHARD H	
			ART UNIT 2871	PAPER NUMBER
			NOTIFICATION DATE 09/22/2016	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

standleydocketing@standleyllp.com

Office Action Summary	Application No. 15/180,968	Applicant(s) DUNN, WILLIAM	
	Examiner RICHARD KIM	Art Unit 2871	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 6/13/16.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☒ Claim(s) 12-20 is/are allowed.

7) ☒ Claim(s) 1,2,4,5 and 8-11 is/are rejected.

8) ☒ Claim(s) 3,6 and 7 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 6/13/16 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

4) ☐ Other: _____.

1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim(s) 1, 2, 4 and 8-11 is/are rejected under pre-AIA 35 U.S.C. 102(b) as being by Fujimori (JP 2001-209126 A).
4. Re claim 1, Fujimori discloses a device comprising a housing (Fig. 10); an electronic display (925G) positioned within the housing; wherein the electronic display is cooled by a combination of a closed loop (1180) of isolated gas and an open loop of ambient air (air flow created by fan 15a) which passes through the housing (Figs. 9, 10).
5. Re claim 2, Fujimori discloses the device wherein the isolated gas (1180) cools a front surface of the electronic display (925G) while the ambient air cools a rear surface of the electronic display. Both the isolated gas and the ambient air collectively cool the optical unit (9), which contains the electronic display (925G, 925B, or 925R). Therefore, the isolated gas and the ambient air would both contribute to cooling front and rear surfaces of the electronic display.
6. Re claim 4, Fujimori discloses the device wherein the closed loop of isolated gas (1180) is not permitted to mix with the open loop of ambient air (Fig. 10).

7. Re claim 8, Fujimori discloses the device wherein the closed loop of isolated gas is partially defined by a sealed rear plenum (9) that does not allow open loop ambient air to enter the plenum.
8. Re claim 9, Fujimori discloses the device comprising one or more electronic devices (925G) for operating the electronic display positioned within the sealed plenum.
9. Re claim 10, Fujimori discloses the device wherein the electronic display (925G) is a liquid crystal display (abstract)
10. Re claim 11, Fujimori discloses the device wherein the closed loop of isolated gas (1180) is substantially prohibited from exiting the housing (9) (Fig. 10).

Claim Rejections - 35 USC § 103

11. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 5 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Fujimori.
13. Fujimori does not explicitly disclose the device wherein the closed loop of isolated gas flows in a direction that is substantially perpendicular to the direction in which the open loop of ambient air flows.
14. It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the device wherein the closed loop of isolated gas flows in a

direction that is substantially perpendicular to the direction in which the open loop of ambient air flows. As show in Fig. 1, the device is a three-dimensional device. Air flowing through the device would flow three-dimensionally in multiple directions. Therefore, some gas flowing through the closed loop would naturally flow in a direction that is substantially perpendicular to the direction in which the open loop of ambient air flows at least momentarily.

Allowable Subject Matter

15. Claims 12-20 allowed.
16. Claims 3, 6 and 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD KIM whose telephone number is (571)272-2294. The examiner can normally be reached on 9:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Caley can be reached on 571-272-2286. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RICHARD KIM/

Primary Examiner, Art Unit 2871

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	23	("20060132699" "20060209266" "20070151664" "20020101553" "20020126248" "20030007109" "20040036834" "20040165139" "8083285" "5869919" "7059757" "20060132699").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 19:52
L2	24	("4093355" "4593978" "4634225" "5029982" "5088806" "5247374" "5559614" "5767489").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 19:53
L3	24	("5748269" "5818010" "6089751" "6157432" "6191839" "6417900" "6535266" "6628355" "6839104" "6885412" "6943768").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 19:54
L4	10	("20020101553" "20020126248" "20030007109" "20040036834" "20040165139").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:02
L5	12	("6493440" "20070103866" "20050012722" "20070212211" "20030104210" "20060082271").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:09
L6	16	("20010001459" "20010019454" "20040105159" "20050073632" "20070206158" "20020033919" "20060177587" "20060092348").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:10
L7	6	("6392727" "6909486" "6961108").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:11
L8	15	("5991153" "6392727" "6961108" "6909486" "7083285" "5869919" "7059757").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:12
L9	12	("20030007109" "20040036834" "20040165139" "20060132699" "20060209266" "20070151664" "20060132699").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/18: 20:13
S1	1	("5991153").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2016/09/14: 17:42

S2	243	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and (fan near5 (ambient outside) near5 (cool\$5 air flow))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/14 17:57
S3	98	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and (fan near5 (ambient outside) near5 (cool\$5 air flow)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/14 17:59
S4	51	(display) near5 (loop near5 air)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/14 18:11
S5	2729	(display) near5 (cool\$5 near5 air)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/14 18:12
S6	1702	(display) near5 (cool\$5 near5 air) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/14 18:13
S7	26	("20070081109" "4980848" "5869919" "5971566" "6104451" "6198222" "6833674" "7164586" "7224121" "7269009" "7369400").PN. OR ("7667964").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/14 18:17
S8	80	("4563617" "4899080" "4952925" "5185554" "5313362" "5345362" "5499868").PN. OR ("5869919").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/14 19:22
S9	26	("20070081109" "4980848" "5869919" "5971566" "6104451" "6198222" "6833674" "7164586" "7224121" "7269009" "7369400").PN. OR ("7667964").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/14 19:28
S10	51	("20030020152" "20030068487" "20050078446" "4442450" "4689720" "5268815" "5287001" "5971566" "6043981" "6049469" "6381124" "6388189" "6504713" "6870738").PN. OR ("7164586").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/14 19:30
S11	16229	((liquid adj crystal adj display) LCD) and ((air flow) near5 (cool cooling dissipat\$5))	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/15 16:51
S12	8375	((liquid adj crystal adj display) LCD) and ((air flow) near5 (cool cooling dissipat\$5)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/15 16:52
S13	2612	((liquid adj crystal adj display) LCD) and ((air flow) near5 (cool cooling dissipat\$5)) and ((air gas) near5 (outside ambient)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/15 17:26
S14	7068	((liquid adj crystal adj display) LCD) and (closed adj loop) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/15 18:21
S15	112	((liquid adj crystal adj display) LCD) and	US-PGPUB;	OR	ON	2016/09/15

EAST Search History

		((closed adj loop) near5 (air gas)) and @ad<"20080909"	USPAT; USOCR			18:21
S16	12	((liquid adj crystal adj display) LCD) and ((loop near5 gas) near5 cool\$5) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/16 11:21
S17	17	"6474410"	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/16 11:33
S18	2	("5991153" "6226180").pn.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/16 11:35
S19	79848	("349").CLAS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2016/09/16 13:09
S20	79848	("349").CLAS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2016/09/16 15:37
S21	932	S20 and projector and prism and (crystal near5 valve)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/16 15:37
S22	0	S20 and projector and prism and ((crystal near5 valve) near5 backlight)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/16 15:38
S23	0	S20 and projector and prism and ((crystal near5 valve) near5 backlight)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/16 15:38
S24	97	S20 and projector and prism and (crystal near5 valve) and backlight	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2016/09/16 15:40

EAST Search History (Interference)

< This search history is empty >

9/ 18/ 2016 8:19:13 PM**C:\ Users\ rkim3\ Documents\ EAST\ Workspaces\ 15180968.wsp**

Search Notes 	Application/Control No. 15180968	Applicant(s)/Patent Under Reexamination DUNN, WILLIAM
	Examiner RICHARD KIM	Art Unit 2871

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search attached	9/16/2016	RHK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/180,968	06/13/2016	William DUNN	MAN2241-010L

CONFIRMATION NO. 7433

PUBLICATION NOTICE

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STANDLEY LAW GROUP LLP
6300 Riverside Drive
Dublin, OH 43017



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Title:System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate

Publication No.US-2016-0302331-A1

Publication Date:10/13/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 15/180,968

Confirm. No.: 7433

Filed: 06/13/2016

Examiner: Richard H. Kim

Inventor: William Dunn

Art Unit: 2871

Title: System for Using Constricted
Convection with Closed Loop
Cooling System As the
Convection Plate

Attorney
Docket No.: MAN2241-010L

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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RESPONSE TO OFFICE ACTION

The following amendments and remarks are in response to the Office Action mailed on 09/22/2016. It is respectfully requested that the Examiner consider the following amendments and remarks prior to further examination of the present application.

AMENDMENTS

- **Amendments to the Claims** begin on page 3 of this Response.
- **Remarks/Arguments** begin on page 10 of this Response.

Amendments to the Claims

The following listing of claims replaces all prior versions and listings of claims in the present application:

Listing of Claims:

1 (currently amended): An electronic display assembly comprising:

~~a~~ an electronic display housing;

a gas-containing closed loop gas cooling chamber located within the electronic display housing;

an electronic display positioned within the electronic display housing but outside of the closed loop gas cooling chamber; and

an open loop ambient air pathway through the electronic display housing;

wherein the electronic display is ~~cooled~~ coolable by a combination of ~~[[a]]~~ gas circulation within the closed loop of isolated gas cooling chamber and an open loop of ambient air which passes flow through the open loop ambient air pathway in the electronic display housing.

2 (currently amended): The electronic display assembly of claim 1 wherein:

the ~~isolated~~ closed loop gas cooling chamber and the open loop ambient air pathway are positioned such that gas cools circulation within the closed loop gas cooling chamber will cool a front surface of the electronic display while the ambient air ~~cools flow will cool~~ a rear surface of the electronic display.

3 (original): The electronic display assembly of claim 2 wherein:

the rear surface of the electronic display comprises the rear surface of an LED
backlight.

4 (currently amended): The electronic display assembly of claim 1 wherein:

the gas within the closed loop of isolated gas cooling chamber is ~~not permitted to~~
~~mix with~~ isolated from the open loop of ambient air.

5 (currently amended): The electronic display assembly of claim 1 wherein:

the closed loop of ~~isolated~~ gas cooling chamber and the ambient air pathway are
configured such that gas flows circulation within the gas cooling chamber
will occur in a direction that is substantially perpendicular to the direction in
~~which the open loop of that~~ ambient air ~~flows~~ will flow through the electronic
display housing.

6 (currently amended): The electronic display assembly of claim 1 wherein:

the closed loop of ~~isolated~~ gas cooling chamber forms a continuous loop and the
open loop of ambient air ~~flows~~ pathway passes through the loop.

7 (currently amended): The electronic display assembly of claim 1 wherein:

the closed loop of ~~isolated~~ gas cooling chamber is configured such that gas is
circulation therein will occur substantially ~~horizontal~~ horizontally, while the
open loop of ambient air is pathway is configured such that ambient air flow

through the electronic display housing will occur substantially ~~vertical~~
vertically.

8 (currently amended): The electronic display assembly of claim 1 wherein:

the closed loop ~~of isolated~~ gas cooling chamber is partially defined by a sealed
rear plenum that ~~does not allow open loop~~ prevents ambient air ~~to enter~~
from entering the plenum.

9 (original): The electronic display assembly of claim 8 further comprising:

one or more electronic devices for operating the electronic display positioned
within the sealed plenum.

10 (currently amended): The electronic display assembly of claim 1 wherein:

the electronic display is selected from the group consisting of a liquid crystal
display, a light emitting diode display, an organic light emitting diode display, a field
emitting display, a cathode ray tube display, and a plasma display.

11 (currently amended): The electronic display assembly of claim 1 ~~wherein~~ further
comprising:

the a gas-circulating fan for circulating the gas within the closed loop ~~of isolated~~
gas cooling chamber, ~~is substantially prohibited from exiting the~~ and a fan
for producing a flow of ambient air through the open loop ambient air
pathway in the electronic display housing.

12 (currently amended): An electronic display assembly comprising:

a housing;

a liquid crystal display (LCD) positioned within the housing and having a backlight;

wherein the electronic display is ~~cooled~~ coolable by a combination of a closed loop of isolated gas which circulates within the housing and an open loop of ambient air which passes through the housing and along the backlight.

13 (currently amended): The electronic display assembly of claim 12 wherein:

the isolated gas ~~cools~~ will cool a front surface of the LCD.

14 (currently amended): The electronic display assembly of claim 12 further comprising:

a rear cooling chamber positioned behind the LCD and containing the closed loop of isolated gas; and

wherein the open loop ambient air ~~contacts~~ will contact an exterior surface of the chamber, but is not permitted to enter the chamber.

15 (original): The electronic display assembly of claim 12 further comprising:

one or more electronic components for driving the LCD positioned within the rear cooling chamber.

16 (currently amended): The electronic display assembly of claim 12 wherein:

the open loop of ambient air ~~contacts~~ will contact an exterior surface of the rear cooling chamber while the closed loop of isolated gas ~~contacts~~ will contact an interior surface of the rear cooling chamber.

17 (currently amended): The electronic display assembly of claim 12 ~~further comprising~~
wherein:

the intended direction of closed loop of isolated gas ~~flows~~ flow in a direction that is
substantially perpendicular to the intended direction ~~in which the~~ of open
loop of ambient air ~~flows~~ flow.

18 (currently amended): An electronic display assembly comprising:

a housing;

an electronic display positioned within the housing;

a rear cooling chamber positioned behind the electronic display and containing an
electrical component which is electrically connected to the electronic
display;

a front surface on the electronic display which faces an intended viewer and a rear
surface on the electronic display which opposes the front surface;

wherein the front surface of the electronic display is ~~cooled~~ coolable by a closed
loop of isolated gas and the rear surface of the electronic display is ~~cooled~~
coolable by an open loop of ambient air.

19 (currently amended): The electronic display assembly of claim 18 wherein:

the open loop of ambient air ~~passes through the housing without~~ is prohibited from
mixing with the closed loop of isolated gas when it passes through the
housing.

20 (currently amended): The electronic display assembly of claim 18 wherein:

the open loop of ambient air ~~passes~~ will pass between the rear surface of the electronic display and an exterior surface of the rear cooling chamber.

21 (new): An electronic display assembly comprising:

an electronic display housing;

a closed loop of cooling gas adapted for circulation within the electronic display housing;

an open loop ambient air pathway through the electronic display housing; and

an electronic display positioned within the electronic display housing such that the electronic display is isolated from the closed loop of cooling gas but contactable by ambient air flowing through the open loop ambient air pathway;

wherein the electronic display is coolable by a combination of closed loop cooling gas circulation within the electronic display housing, and ambient air flow through the open loop ambient air pathway in the electronic display housing.

22 (new): The electronic display assembly of claim 21 wherein:

the closed loop of cooling gas is isolated within a continuous loop gas cooling chamber, and the open loop ambient air pathway is configured to direct the ambient air over an exterior surface of the gas cooling chamber when it flows through the electronic display housing.

23 (new): The electronic display assembly of claim 22 further comprising:

a fan located within the electronic display housing, the fan configured and oriented to move air located within the housing between a surface of the continuous loop gas cooling chamber and a rear surface of the electronic display.

REMARKS/ARGUMENTS

In the Claims:

Claims 1-20 were pending in the application as of the mailing date of the current Office Action, with Claims 1, 2, 4, 5 and 8-11 being rejected, Claims 3, 6 and 7 being objected to, and Claims 12-20 being allowed. New Claims 21-23 have been added, and no claims have been canceled. Consequently, Claims 1-23 are now pending in the application.

Since all claims of the present application are entitled to a filing date before March 16, 2013, the effective date for changes to 35 USC § 102 under the "America Invents Act" (AIA), all references to 35 USC § 102 made herein will be to the pre-AIA version of 35 USC § 102.

Rejection of Claims 1, 2, 4 and 8-11 Under 35 U.S.C. § 102(b)

The Examiner rejected Claims 1, 2, 4 and 8-11 under 35 U.S.C. § 102(b) as being anticipated by Fujimori (JP 2001-209126 A). The rejection is respectfully traversed.

The rejected claims have been amended herein to clarify that:

- the recited closed loop of gas is contained within a closed loop gas cooling chamber located within the electronic display housing;
- the electronic display is positioned within the electronic display housing but *outside of* the closed loop gas cooling chamber; and
- there is an open loop ambient air pathway through the electronic display housing.

It is respectfully submitted that Fujimori does not teach such an electronic display assembly.

Upon review of a machine-translated version of the Fujimori reference, as well as US 6,007,205, which is believed to be an English language version of the Japanese specification, it generally appears that Fujimori teaches a projector having a cooled optical lens unit. There are numerous differences between the teachings of Fujimori and the subject matter of the rejected claims.

One obvious difference between the teachings of Fujimori and the subject matter of the rejected claims is that Fujimori is directed to cooling a few small internal components of a projector while the rejected claims are directed to an electronic display assembly wherein an entire electronic display may be cooled. As pointed out in the subject application, such electronic displays may have screens that are, for example, 55 inches and larger in size. Thus, the teachings of Fujimori do not appear particularly applicable to the electronic displays of the subject application.

The Examiner specifically refers to the (green, blue and red) liquid crystal light valves (925) of Fujimori – which are operative to modulate each color of light passing therethrough and to pass the modulated light on to the prism unit (910) – as teaching such a cooled electronic display. While Applicant respectfully disagrees that the liquid crystal light valves of Fujimori are the equivalent of the electronic display of the rejected claims, Fujimori nonetheless fails to anticipate the rejected claims even if such equivalence is accepted for the sake of argument.

As can be observed in the representative drawing of JP 2001-209126 A and in FIGS. 9-14 of US 6,007,205, the Fujimori projector always locates the liquid crystal light valves (925) within a sealed and airtight optical lens unit (9). (See, e.g., col. 13, l. 64 to col. 14, l. 3 of Fujimori '205). Air is circulated within the sealed optical lens unit (9) by a circulation fan (15B) that is also located within the sealed optical lens unit. An air circulation current (1180) – i.e., a closed loop of cooling gas – created by the fan (15B) passes over the liquid crystal light valves (925) and also contacts an underside of a top seal plate (991) that seals a top opening of the optical lens unit (9). (See, e.g., col. 14, ll. 4-12 of Fujimori '205). A separate intake fan (15A), which is located entirely outside of the sealed optical lens unit (9), draws outside air into the projector case and passes the outside air over a top side of the top seal plate (991). This allegedly (convectively) cools the top seal plate (991), and also (conductively) cools the circulating air within the sealed optical lens unit (9). (See, e.g., col. 14, ll. 13-20 of Fujimori '205).

Notably, in each projector embodiment of Fujimori, the liquid crystal light valves (925) that the Examiner equates with the electronic display of the rejected claims, is located within the sealed optical lens unit (9) and is in direct contact with the air circulation current (1180) – i.e., a closed loop of cooling gas – located therein. Consequently, the liquid crystal light valves (925) are also isolated from any contact with the ambient air flow created by the separate intake fan (15A).

In contrast to the constructions taught by Fujimori, it is now clarified in the rejected claims as amended that the closed loop of cooling gas is contained within a closed loop gas cooling chamber located within the electronic display housing and that, while the

electronic display is also located within the electronic display housing, the electronic display is positioned *outside of* the closed loop gas cooling chamber. It is also now specified that the claimed electronic display assembly includes an open loop ambient air pathway through the electronic display housing. Thus, the electronic display of the rejected claims is not in contact with the cooling gas located within the gas cooling chamber, but may be contactable by ambient air that is passed through the electronic display housing. This is in direct contrast to the projector designs of Fujimori, where the liquid crystal light valves (925) are located entirely within the sealed optical lens unit (9), are in direct contact with the air circulation current (1180) produced therein, and are isolated from any contact with the ambient air flow produced by the intake fan (15A).

From the foregoing remarks, it can be understood that there are significant differences between the teachings of Fujimori and the subject matter of the rejected claims as amended. Consequently, it is submitted that Fujimori cannot support a rejection of Claims 1, 2, 4 and 8-11 under 35 U.S.C. § 102(b), and withdrawal of said rejection is accordingly requested.

Rejection of Claim 5 Under 35 U.S.C. § 103(a)

The Examiner rejected Claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Fujimori. Amended independent Claim 1 is believed to be allowable, as discussed above. As such, Claim 5, which depends therefrom, would also be allowable.

New Claims 21-23

New Claims 21-23 are believed to be allowable over Fujimori for the same reasons articulated above in response to the Examiner's rejection of Claims 1, 2, 4 and 8-11.

Allowable Subject Matter

The Examiner's allowance of Claims 12-20 is noted and appreciated. Claims 12-14 and 16-20 have been amended herein only to avoid any possible mixture of method and apparatus (assembly) claims. No substantive changes have been made to any of the allowed claims.

CONCLUSION

The rejected claims have been amended to more clearly describe the subject matter recited therein, and new Claims 21-23 have been added. The subject matter of the rejected claims has also been distinguished over the teachings of the reference cited as prior art by the Examiner.

Therefore, it is respectfully submitted that the application is now in condition for allowance, and such action is earnestly requested. Telephone inquiry to the undersigned in order to clarify or otherwise expedite prosecution of the application is encouraged.

Respectfully submitted,

Date: 12/21/2016

By: /Eric M. Gayan/
Eric M. Gayan
Attorney for Applicant
Registration No. 46,103
Standley Law Group LLP
6300 Riverside Drive
Dublin, Ohio 43017

Response to Office Action of: 09/22/2016

Response Dated: 12/21/2016

Title: System for Using Constricted Convection with Closed Loop Cooling
System As the Convection Plate

App. No.: 15/180,968

Inventor: William Dunn

Examiner: Richard H. Kim

Telephone: (614) 792-5555

Facsimile: (614) 792-5536

E-mail: egayan@standleyllp.com

Electronic Patent Application Fee Transmittal				
Application Number:		15180968		
Filing Date:		13-Jun-2016		
Title of Invention:		System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
First Named Inventor/Applicant Name:		William DUNN		
Filer:		Eric Michael Gayan/Trisha Beachy-Bryant		
Attorney Docket Number:		MAN2241-010L		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	3	80	240
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	420	420
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				660

Electronic Acknowledgement Receipt	
EFS ID:	27857709
Application Number:	15180968
International Application Number:	
Confirmation Number:	7433
Title of Invention:	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
First Named Inventor/Applicant Name:	William DUNN
Customer Number:	8698
Filer:	Eric Michael Gayan/Trisha Beachy-Bryant
Filer Authorized By:	Eric Michael Gayan
Attorney Docket Number:	MAN2241-010L
Receipt Date:	21-DEC-2016
Filing Date:	13-JUN-2016
Time Stamp:	09:31:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$660
RAM confirmation Number	122116INTEFSW00008979194076
Deposit Account	194076
Authorized User	Trisha Beachy-Bryant
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1stResponsetoOAof9-22-16_M AN2241-010L_12-21-16.pdf	67828 ab65a45f5427d6a20bffe936527ceb3a473f45d0	yes	15
Multipart Description/PDF files in .zip description					
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	2	
	Claims		3	9	
	Applicant Arguments/Remarks Made in an Amendment		10	15	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32318 f2daaf4ade8835e4efa524146c067285dda0e4ab	no	2
Warnings:					
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Total Files Size (in bytes):			100146		

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New International Application Filed with the USPTO as a Receiving Office

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/180,968		Filing Date 06/13/2016		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (j), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	12/21/2016	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 23	Minus	** 20	= 3	X \$80 =		240	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		240	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						LIE SHEILA D. CHAPMAN			

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NOTICE OF ALLOWANCE AND FEE(S) DUE

8698 7590 02/17/2017
STANDLEY LAW GROUP LLP
6300 Riverside Drive
Dublin, OH 43017

EXAMINER

KIM, RICHARD H

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/17/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/180,968	06/13/2016	William DUNN	MAN2241-010L	7433

TITLE OF INVENTION: System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/17/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

8698 7590 02/17/2017
STANDLEY LAW GROUP LLP
6300 Riverside Drive
Dublin, OH 43017

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/180,968	06/13/2016	William DUNN	MAN2241-010L	7433

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nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/17/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
KIM, RICHARD H	2871	349-058000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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15/180,968	06/13/2016	William DUNN	MAN2241-010L	7433
8698	7590	02/17/2017	EXAMINER	
STANDLEY LAW GROUP LLP			KIM, RICHARD H	
6300 Riverside Drive			ART UNIT	PAPER NUMBER
Dublin, OH 43017			2871	

DATE MAILED: 02/17/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/180,968	Applicant(s) DUNN, WILLIAM	
	Examiner RICHARD KIM	Art Unit 2871	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/21/16.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-23. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. ☒ Notice of References Cited (PTO-892) | 5. ☐ Examiner's Amendment/Comment |
| 2. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 6. ☒ Examiner's Statement of Reasons for Allowance |
| 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. ☐ Other ____. |
| 4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____ | |

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1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Allowable Subject Matter

2. Claims 1-23 allowed.
3. The following is an examiner's statement of reasons for allowance: The prior art of record, taken alone or in combination, fails to teach or disclose, in light of the specifications, **claim 1**) an electronic display assembly comprising an electronic display positioned within the electronic display housing but outside of the closed loop gas cooling chamber; wherein the electronic display is coolable by a combination of gas circulation within the closed loop gas cooling chamber and ambient air flow through the open loop ambient air pathway in the electronic display housing, along with all the other claim limitations; **claim 12**) an electronic display assembly wherein the electronic display is coolable by a combination of a closed loop of isolated gas which circulates within the housing and an open loop of ambient air which passes through the housing and along the backlight, along with all the other claim limitations; **claim 18**) an electronic display assembly comprising a rear cooling chamber positioned behind the electronic display and containing an electrical component which is electrically connected to the electronic display; a front surface on the electronic display which faces an intended viewer and a rear surface on the electronic display which opposes the front surface; wherein the front surface of the electronic display is coolable by a closed loop of isolated gas and the rear surface of the electronic display is coolable by an open loop of ambient air, along with all the other claim

limitations; and **claim 21**) an electronic display assembly comprising an electronic display positioned within the electronic display housing such that the electronic display is isolated from the closed loop of cooling gas but contactable by ambient air flowing through the open loop ambient air pathway; wherein the electronic display is coolable by a combination of closed loop cooling gas circulation within the electronic display housing, and ambient air flow through the open loop ambient air pathway in the electronic display housing, along with all the other claim limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD KIM whose telephone number is (571)272-2294. The examiner can normally be reached on 9:00-6:30 M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Caley can be reached on 571-272-2286. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RICHARD KIM/
Primary Examiner, Art Unit 2871

Notice of References Cited	Application/Control No. 15/180,968	Applicant(s)/Patent Under Reexamination DUNN, WILLIAM	
	Examiner RICHARD KIM	Art Unit 2871	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-6,007,205 A	12-1999	Fujimori; Motoyuki	G03B21/16	348/E9.027
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



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BIB DATA SHEET

CONFIRMATION NO. 7433

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
15/180,968	06/13/2016	349	2871	MAN2241-010L

APPLICANTS
 Manufacturing Resources International, Inc., Alpharetta, GA;

INVENTORS
 William DUNN, Alpharetta, GA;

**** CONTINUING DATA *******
 This application is a CON of 14/803,848 07/20/2015 PAT 9370127
 which is a CON of 14/508,767 10/07/2014 PAT 9089079
 which is a CON of 13/937,777 07/09/2013 PAT 8854572
 which is a CON of 13/605,530 09/06/2012 PAT 8482695
 which is a CON of 12/620,330 11/17/2009 PAT 8274622
 which claims benefit of 61/115,333 11/17/2008
 and is a CIP of 12/234,307 09/19/2008 PAT 8767165
 which claims benefit of 61/033,064 03/03/2008
 and said 12/620,330 11/17/2009
 is a CIP of 12/234,360 09/19/2008
 which claims benefit of 61/053,713 05/16/2008
 and said 12/620,330 11/17/2009
 is a CIP of 12/237,365 09/24/2008 PAT 8879042
 which claims benefit of 61/057,599 05/30/2008
 and said 12/620,330 11/17/2009
 is a CIP of 12/411,925 03/26/2009 PAT 8854595
 which claims benefit of 61/039,454 03/26/2008
 and said 12/620,330 11/17/2009
 is a CIP of 12/235,200 09/22/2008 ABN
 which claims benefit of 61/076,126 06/26/2008
 and said 12/620,330 11/17/2009
 is a CIP of 12/556,029 09/09/2009 PAT 8373841
 which claims benefit of 61/095,615 09/09/2008

**** FOREIGN APPLICATIONS *******

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
 06/30/2016

Foreign Priority claimed 35 USC 119(a-d) conditions met Verified and Acknowledged	☐ Yes ☒ No ☐ Yes ☒ No /RICHARD H KIM/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY GA	SHEETS DRAWINGS 3	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
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ADDRESS
 STANDLEY LAW GROUP LLP
 6300 Riverside Drive
 Dublin, OH 43017
 UNITED STATES

TITLE

Search Notes 	Application/Control No. 15180968	Applicant(s)/Patent Under Reexamination DUNN, WILLIAM
	Examiner RICHARD KIM	Art Unit 2871

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search attached	9/16/2016	RHK
EAST search attached	2/6/2017	RHK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	claim language search	2/6/2017	RHK

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Issue Classification 	Application/Control No. 15180968	Applicant(s)/Patent Under Reexamination DUNN, WILLIAM	
	Examiner RICHARD KIM	Art Unit 2871	

CPC					
Symbol				Type	Version
H05K	7	20954		F	2013-01-01
G02F	1	133603		I	2013-01-01
H05K	7	20145		I	2013-01-01
H05K	7	20972		I	2013-01-01
G02F	1	133385		I	2013-01-01
H05K	7	20136		I	2013-01-01
G02F	2201	36		A	2013-01-01
H05K	7	20163		I	2013-01-01
H05K	7	202		I	2013-01-01
H05K	7	20209		I	2013-01-01
G02F	1	133308		I	2013-01-01
G02F	1	133615		I	2013-01-01
H05K	7	20127		I	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
		23	
(Assistant Examiner)	(Date)		
/RICHARD KIM/ Primary Examiner.Art Unit 2871	02/06/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S35	8380	((liquid adj crystal adj display) LCD) and ((air flow) near5 (cool cooling dissipat\$5)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2017/02/06 22:16
S38	112	((liquid adj crystal adj display) LCD) and ((closed adj loop) near5 (air gas)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2017/02/06 22:19
S37	1702	(display) near5 (cool\$5 near5 air) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 22:19
S36	101	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and ((fan near5 (ambient outside) near5 (cool\$5 air flow)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 22:19
S39	443	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and ((cool\$5 heat\$5) near5 (loop chamber flow)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 22:21
S41	399	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and ((ambient outside) near5 (cool\$5 air flow)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 22:28
S40	1023	(h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and ((ambient outside) near5 (cool\$5 air flow))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 22:28
S42	47	("1955899" "4405949" "4529905" "4734613" "5633660").PN. OR ("6504713").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/02/06 22:32
S43	12	((liquid adj crystal adj display) LCD) and ((loop near5 gas) near5 cool\$5) and @ad<"20080909"	US-PGPUB; USPAT; USOCR	OR	ON	2017/02/06 22:34
S44	14	("20050064577" "3957585" "3986297" "4236349" "4676956" "4952511" "5073491" "5555676").PN. OR ("7425441").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/02/06 22:35
S45	3	"20110310482"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06 23:14

EAST Search History

L1	396	((h05k7/20954 g02f1/133615 g02f1/133385 h05k7/20127 h05k7/20972 g02f1/133308 h05k7/202).cpc. and (cool\$5 near5 fan)) and @ad<"20080909"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2017/02/06: 23:58
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EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	8	(open adj loop adj ambient adj air).clm.	US-PGPUB; USPAT	OR	ON	2017/02/07 00:00

2/ 7/ 2017 12:01:32 AM**C:\ Users\ rkim3\ Documents\ EAST\ Workspaces\ 15180968.wsp**

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
15180968	13-Jun-2016	William DUNN	MAN2241-010L	7433

TITLE OF INVENTION :

System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Regular Undiscounted	Utility under 35 USC 111(a)	2871	058000	RICHARD KIM
Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
\$960	\$0	\$960	17-May-2017	\$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
8698 STANDLEY LAW GROUP LLP 6300 Riverside Drive Dublin OH 43017 UNITED STATES 6147925555 ~~standleydocketing@standleyllp.com~~	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status**Change in Entity Status**

Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.

Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.



Applicant asserting small entity status. See 37 CFR 1.27.

Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.



Applicant changing to regular undiscounted fee status.

Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.



Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:☒ Issue Fee

I authorize USPTO to apply my previously paid issue fee to the current fees due

☐ Publication Fee

The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____

☐ Advance Order - # of copies _____

If in addition to the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency or credit any overpayment, to Deposit Account Number 194076.

The issue fee must be submitted with this form. If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.

4.Firm and/or Attorney Names To Be Printed**NOTE: If no name is listed, no name will be printed**

For printing on the patent front page, list to be displayed as entered

1. STANDLEY LAW GROUP LLP

2.

3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
Manufacturing Resources International, Inc.	Alpharetta	GEORGIA	united states	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Eric M. Gayan/	Date	03-09-2017
Name	Eric Michael Gayan	Registration Number	46103

Electronic Patent Application Fee Transmittal				
Application Number:		15180968		
Filing Date:		13-Jun-2016		
Title of Invention:		System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate		
First Named Inventor/Applicant Name:		William DUNN		
Filer:		Eric Michael Gayan/Trisha Beachy-Bryant		
Attorney Docket Number:		MAN2241-010L		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	960	960
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt	
EFS ID:	28583874
Application Number:	15180968
International Application Number:	
Confirmation Number:	7433
Title of Invention:	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
First Named Inventor/Applicant Name:	William DUNN
Customer Number:	8698
Filer:	Eric Michael Gayan/Trisha Beachy-Bryant
Filer Authorized By:	Eric Michael Gayan
Attorney Docket Number:	MAN2241-010L
Receipt Date:	09-MAR-2017
Filing Date:	13-JUN-2016
Time Stamp:	15:07:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$960
RAM confirmation Number	031017INTEFSW00001483194076
Deposit Account	194076
Authorized User	Trisha Beachy-Bryant
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.20 (Post Issuance fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Web85b.pdf	46078	no	2
			a3437eaf9e97b1de82581e84e11221c1f72736b3		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32661	no	2
			785cb862fc9331e259cdca44998b4071cedb9aea		
Warnings:					
Information:					
Total Files Size (in bytes):			78739		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/180,968	04/18/2017	9629287	MAN2241-010L	7433

8698 7590 03/29/2017
STANDLEY LAW GROUP LLP
6300 Riverside Drive
Dublin, OH 43017

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

William DUNN, Alpharetta, GA;
Manufacturing Resources International, Inc., Alpharetta, GA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

U.S. Patent No: 9,629,187
Inventor: William Dunn
Issued: April 18, 2017
Application No.: 15/180,968
Examiner: Richard H. Kim
Group Art Unit: 2871
Confirmation No.: 7433
Title: SYSTEM FOR USING CONSTRICTED CONVECTION WITH CLOSED
LOOP COOLING SYSTEM AS THE CONVECTION PLATE
Docket No.: MAN2241-010L

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. §1.8 (A)

Date of Transmission: April 26, 2017

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office by EFS-Web.

/Trisha M. Beachy-Bryant/
Trisha M. Beachy-Bryant, Paralegal

Sir:

REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 C.F.R. 1.322

Transmitted herewith is a Certificate of Correction for the above-identified patent. Upon reviewing the patent, the patentee noted typographical errors made by the Patent Office in the printing of the priority claim on the title page of the patent, which should be corrected as indicated on the attached form PTO/SB/44. A review of the application as submitted and thereafter amended confirms that the errors were a result of Patent Office mistake and, therefore, no fee is due.

Approval of the Certificate of Correction is respectfully solicited.

Respectfully submitted,

Date: April 26, 2017

By: /Eric M. Gayan/
Eric M. Gayan
Registration No. 46,103
Standley Law Group LLP
6300 Riverside Drive
Dublin, Ohio 43017
Telephone: 614/792-5555
Facsimile: 614/792-5536

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 9,629,187
APPLICATION NO.: 15/180,968
ISSUE DATE : April 18, 2017
INVENTOR(S) : William Dunn

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, please delete all of the text in Related U.S. Application Data sections (63) and (60), and insert -- Continuation of application No. 14/803,848 filed on Jul. 20, 2015, now Pat. No. 9,370,127, which is a continuation of application No. 14/508,767 filed on Oct. 7, 2014, now Pat. No. 9,089,079, which is a continuation of application No. 13/937,777 filed on Jul. 9, 2013, now Pat. No. 8,854,572, which is a continuation of application No. 13/605,530 filed on Sep. 6, 2012, now Pat. No. 8,482,695, which is a continuation of application No. 12/620,330 filed on Nov. 17, 2009, now Pat. No. 8,274,622, which is a non-provisional application of application No. 61/115,333 filed on Nov. 17, 2008. Application No. 12/620,330 is also continuation-in-part of application No. 12/411,925 filed on Mar. 26, 2009, now Pat. No. 8,854,595, which is a non-provisional application of application No. 61/039,454 filed on Mar. 26, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/556,029 filed on Sep. 9, 2009, now Pat. No. 8,373,841, which is a non-provisional application of application No. 61/095,615 filed on Sep. 9, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/234,307 filed on Sep. 19, 2008, now Pat. No. 8,767,165, which is a non-provisional application of application No. 61/033,064 filed on Mar. 3, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/234,360 filed on Sep. 19, 2008, which is a non-provisional application of application No. 61/053,713 filed on May 16, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/237,365, filed on Sep. 24, 2008, now Pat. No. 8,879,042, which is a non-provisional application of application No. 61/057,599 filed on May 30, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/235,200 filed on Sep. 22, 2008, which is a non-provisional application of application No. 61/076,126 filed on Jun. 26, 2008. --

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Standley Law Group LLP
6300 Riverside Drive
Dublin, OH 43017

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

SEC et al. v. MRI
SEC Exhibit 1014.0103
IPR2023-00255

Electronic Acknowledgement Receipt	
EFS ID:	29029699
Application Number:	15180968
International Application Number:	
Confirmation Number:	7433
Title of Invention:	System for Using Constricted Convection with Closed Loop Cooling System As the Convection Plate
First Named Inventor/Applicant Name:	William DUNN
Customer Number:	8698
Filer:	Eric Michael Gayan/Trisha Beachy-Bryant
Filer Authorized By:	Eric Michael Gayan
Attorney Docket Number:	MAN2241-010L
Receipt Date:	26-APR-2017
Filing Date:	13-JUN-2016
Time Stamp:	10:25:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	RequestForCertificateOfCorrection_MAN2241-010L_4-26-17.pdf	132768 b0e39ce465f663e6794f4201bf2110ca65ac8c7a	no	2

Warnings:

Information:	
Total Files Size (in bytes):	132768
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 9,629,287 B2
APPLICATION NO. : 15/180968
DATED : April 18, 2017
INVENTOR(S) : William Dunn

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item (63):

Please delete all of the text in Related U.S. Application Data items (63) and (60), and insert

-- Continuation of application No. 14/803,848 filed on Jul. 20, 2015, now Pat. No. 9,370,127, which is a continuation of application No. 14/508,767 filed on Oct. 7, 2014, now Pat. No. 9,089,079, which is a continuation of application No. 13/937,777 filed on Jul. 9, 2013, now Pat. No. 8,854,572, which is a continuation of application No. 13/605,530 filed on Sep. 6, 2012, now Pat. No. 8,482,695, which is a continuation of application No. 12/620,330 filed on Nov. 17, 2009, now Pat. No. 8,274,622, which is a non-provisional application of application No. 61/115,333 filed on Nov. 17, 2008. Application No. 12/620,330 is also continuation-in-part of application No. 12/411,925 filed on Mar. 26, 2009, now Pat. No. 8,854,595, which is a non-provisional application of application No. 61/039,454 filed on Mar. 26, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/556,029 filed on Sep. 9, 2009, now Pat. No. 8,373,841, which is a non-provisional application of application No. 61/095,615 filed on Sep. 9, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/234,307 filed on Sep. 19, 2008, now Pat. No. 8,767,165, which is a non-provisional application of application No. 61/033,064 filed on Mar. 3, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/234,360 filed on Sep. 19, 2008, which is a non-provisional application of application No. 61/053,713 filed on May 16, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/237,365, filed on Sep. 24, 2008, now Pat. No. 8,879,042, which is a non-provisional application of application No. 61/057,599 filed on May 30, 2008. Application No. 12/620,330 is also a continuation-in-part of application No. 12/235,200 filed on Sep. 22, 2008, which is a non-provisional application of application No. 61/076,126 filed on Jun. 26, 2008.

--

Signed and Sealed this
Thirtieth Day of May, 2017



Michelle K. Lee
Director of the United States Patent and Trademark Office

SEC et al. v. MRI
SEC Exhibit 1014.0106
IPR2023-00255

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
---	---

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:22-cv-00320	DATE FILED 8/19/2022	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF Manufacturing Resources International, Inc.		DEFENDANT Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., Samsung SDS Co., Ltd., Samsung SDS America, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,854,595	10/7/2014	Manufacturing Resources International, Inc.
2 9,173,322	10/27/2015	Manufacturing Resources International, Inc.
3 9,629,287	12/10/2019	Manufacturing Resources International, Inc.
4 10,506,740	4/18/2017	Manufacturing Resources International, Inc.
5 11,013,142	5/18/2021	Manufacturing Resources International, Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

SEC et al. v. MRI
 SEC Exhibit 1014.0107
 IPR2023-00255