

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. No.:	16/933,932	:	
Confirmation No.:	5816	:	
Inventor:	Dunn, William et. al.	:	RESPONSE TO NON-FINAL OFFICE ACTION
Filed:	July 20, 2020	:	
Examiner:	Matey, Michael A.	:	
Art Unit:	2835	:	
Docket No.:	MAN2241-045R	:	
Title:	ELECTRONIC DISPLAY WITH COOLING	:	

CERTIFICATE OF TRANSMISSION UNDER 37 CFR § 1.8 (a) Date of Transmission: December 18, 2020 I hereby certify that this correspondence is being electronically filed via EFS-Web. /Brianna J. Lacy/ Brianna J. Lacy, paralegal

The following papers are filed in response to the Non-Final Office Action mailed September 30, 2020. A **LISTING OF CLAIMS** begins at page 2 and **REMARKS** begin at page 8.

As this response is filed within three months of the mailing date of the Non-Final Office Action, no additional fees are believed to be due. Please charge any fee deficiency to Deposit Account 19-4076.

LISTING OF CLAIMS

Claim 1 (currently amended) A cooling system for an electronic image assembly, the cooling system comprising:

a housing for the electronic image assembly;

a ~~transparent cover~~ panel forming a ~~front forward~~ portion of the housing, wherein the ~~transparent cover~~ panel is located forward of, and at least some distance from, the electronic image assembly ~~and is configured to permit viewing of images displayed at the electronic image assembly through said cover panel;~~

~~a closed loop an~~-airflow pathway passing through the housing, ~~wherein at least a portion of said closed loop airflow pathway extends~~ between said electronic image assembly and said ~~transparent cover~~ panel;

~~an at least one~~ air circulation device positioned to force air through the ~~closed loop airflow pathway when activated;~~ and

at least one polarizer located at ~~an inward facing surface of said transparent cover panel and configured to reduce prevent at least some solar energysunlight striking said cover panel from traveling beyond said at least one polarizer.~~

Claim 2 (cancelled)

Claim 3 (currently amended) The cooling system of claim 1 further comprising:

at least one film having anti-reflection properties located at said ~~transparent cover~~ panel.

Claim 4 (currently amended) The cooling system of claim 1 wherein:

said closed loop airflow pathway encircles said electronic image assembly and is configured to accommodate circulating gas.

Claim 5 (currently amended) The cooling system of claim 4 further comprising:

an open loop airflow pathway for ambient air passing through said housing and behind said electronic image assembly.

Claim 6 (currently amended) The cooling system of claim 5 further comprising:

a heat exchanger located rearward of the electronic image assembly, wherein a first portion of said heat exchanger forms part of said open loop airflow pathway, and wherein a second portion of said heat exchanger forms part of said closed loop airflow pathway.

Claim 7 (original) The cooling system of claim 6 further comprising:

an inlet located at a first portion of said housing for ingesting ambient air into said open loop airflow pathway; and

an exhaust located at a second portion of said housing for exhausting ambient air from said open loop airflow pathway.

Claims 8-9 (cancelled)

Claim 10 (original) The cooling system of claim 1 wherein:

said at least one polarizer comprises a linear polarizer.

Claim 11 (original) A cooling system for an electronic image assembly, the cooling system comprising:

a housing for the electronic image assembly;

a transparent cover panel forming a front portion of the housing, the transparent cover panel located forward of, and at least some distance from, the electronic image assembly;

an open loop airflow pathway passing through the housing behind the electronic image assembly;

a closed loop gas circulation pathway contained within the housing, wherein a portion of said closed loop gas circulation pathway passes between said transparent cover panel and said electronic image assembly;

an inlet located at a first portion of said housing for ingesting ambient air into said open loop airflow pathway;

an exhaust located at a second portion of said housing for exhausting ambient air from said open loop airflow pathway;

an air circulation device positioned along said open loop airflow pathway between said inlet and said exhaust, wherein said air circulation device is configured to force ambient air through the open loop air flow pathway;

a gas circulation device positioned along said closed loop gas circulation pathway to force circulating gas around the closed loop pathway;

a heat exchanger located rearward of the electronic image assembly, wherein a first portion of said heat exchanger forms part of said open loop airflow pathway, and wherein a second portion of said heat exchanger forms part of said closed loop gas circulation pathway; and

one or more solar energy reduction layers located at said transparent panel, wherein each of said one or more solar energy reduction layers is configured to prevent a portion of solar energy entering said transparent cover from thermally interacting with circulating gas at said portion of said closed loop gas circulation pathway passing between said transparent panel and said electronic image assembly or thermally interacting with said electronic image assembly.

Claim 12 (original) The cooling system of claim 11 wherein:

said air circulation device comprises one or more fan assemblies; and
said gas circulation device comprises one or more fan assemblies.

Claim 13 (original) The cooling system of claim 11 wherein:

at least one of said one or more solar energy reduction layers comprise a polarizer.

Claim 14 (original) The cooling system of claim 13 wherein:

said polarizer comprises a linear polarizer.

Claim 15 (original) The cooling system of claim 11 wherein:

at least one of said one or more solar energy reduction layers comprise a film having anti-reflection properties.

Claim 16 (original) The cooling system of claim 11 wherein:

at least a first one of said one or more solar energy reduction layers comprise a polarizer; and

at least a second one of said one or more solar energy reduction layers comprise a film having anti-reflection properties.

Claim 17 (currently amended) A method for cooling an electronic image assembly, said method comprising the steps of:

placing said the electronic image assembly within a housing;

forcing circulating air through a closed loop ~~an~~ airflow pathway within said housing, wherein at least a portion of said closed loop airflow pathway extends between an electronic image assembly and a transparent cover panel forming a front portion of said housing and spaced apart from said electronic image assembly, wherein said cover panel is configured to permit viewing of images displayed at the electronic image assembly through said cover panel; and

forcing ambient air through a second airflow pathway within said housing,
wherein said second airflow pathway extends behind said electronic image assembly;
and

providing one or more solar energy reduction layers at an inward facing surface of said transparent cover panel, wherein each of said one or more solar energy

reduction layers is configured to reduce the amount of solar energy transferred to said circulating air in at least said portion of said first airflow pathway.

Claim 18 (original) The cooling method of claim 17 wherein:

at least one of said one or more solar energy reduction layers comprise a polarizer.

Claim 19 (original) The cooling method of claim 18 wherein:

at least one of said one or more solar energy reduction layers comprise a film having anti-reflection properties.

Claim 20 (currently amended) The cooling method of claim 17 further comprising the steps of:

~~forcing ambient air through a second airflow pathway within said housing,
wherein said second airflow pathway extends behind said electronic image assembly;
and~~

thermally transferring heat between said circulating air in said closed loop airflow pathway and said ambient air in said second airflow pathway at a heat exchanger common to said closed loop airflow pathway and said second airflow pathway, ~~wherein said airflow pathway defines a closed loop and said air in said airflow pathway comprises circulating gas.~~

REMARKS

In response to the Office Action mailed September 30, 2020, Applicant respectfully requests that Examiner enter the above amendments and consider the following remarks. Unless expressly stated otherwise, the amendments and remarks made herein are irrelevant to any claims in any other patent applications. The failure to expressly address any reason for any rejection should not be understood to be agreement with such reason. Additionally, some arguments may be made collectively herein in the interests of brevity and compact prosecution and should not be understood as an admission that such claims rise and fall together.

Claims 1, 3-6, 17, and 20 are amended. Claims 2 and 8-9 are cancelled. No claims are added or withdrawn. As a result, claims 1, 3-7, and 10-20 remain pending in the application. Applicant respectfully requests further examination and reconsideration of the application in light of the accompanying remarks.

Claim Amendments¹

Claim 1 is amended to clarify the claimed subject matter and to incorporate at least some of the limitations of now cancelled claims 2 and 8-9. Support for this amendment can be found in one or more of figures 1-4 as well as paragraphs [0014]-[0017], [0023], and [0025]-[0031].

Claims 3-6 are amended for clarity and/or consistency with amended claim 1.

Claim 17 is amended to clarify the claimed subject matter and to incorporate at least some of the limitations deleted from claim 20. Support for this amendment can be

¹ Citations are made herein with reference to the corresponding published application.

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found in one or more of figures 1-4 as well as paragraphs [0014]-[0017], [0023], and [0025]-[0031].

No new matter is added.

Allowable Subject Matter

Applicant thanks Examiner for allowing claims 11-16. Applicant thanks Examiner for noting that claim 20 would be allowable if re-written in independent form to include all limitations of the base claim and any intervening claims. Claim 17 is amended to incorporate some of the limitations of now cancelled claim 20 herewith understood to result in allowability based on Examiner's comments. See OA of 9/30/20 at pg. 12-13. Therefore, Applicant respectfully submits that claim 17 is in condition for allowance with claims 18-19 being allowable as proper dependents therefrom. Applicant notes that further amendments are made to claim 17 herewith for clarity which are not believed to affect allowability of claim 17.

Initial Remarks

Examiner's comments regarding the submitted information disclosure statements (IDS) are noted. Applicant respectfully notes that at least MPEP § 609 and 37 CFR 1.97 requires the Examiner to consider all references submitted in an IDS. Without commenting on the particular relevance of such documents, Applicant respectfully submits that the Present Application is a continuation of U.S. Application Serial No. 16/708,260 filed December 9, 2019 and the following references were specifically cited in a rejection in one or more office actions in the '260 Application:

- No such references.

The '260 Application is a continuation of U.S. Application Serial No. 15/789,331 filed on October 20, 2017 and the following references were specifically cited in a rejection in one or more office actions in the '331 Application (please note, repetitive or equivalent references may be omitted):

- US 2004/0135482 Thielemans et al.

The '331 Application is a continuation of U.S. Application Serial No. 14/834,034 filed on August 24, 2015 and the following references were specifically cited in a rejection in one or more office actions in the '034 Application (please note, repetitive or equivalent references may be omitted):

- US 5,657,641 Cunningham et al.
- US 2005/0229630 Richter et al.
- US 2006/0260790 Theno et al.
- US 2007/0230167 McMahon et al.
- US 2009/0251650 Fukagawa et al.

The '034 Application is a continuation of U.S. Application Serial No. 14/050,464 filed on October 10, 2013 and the following references were specifically cited in a rejection in one or more office actions in the '464 Application (please note, repetitive or equivalent references may be omitted):

- US 2006/0012958 Tomioka et al.
- US 2009/0154096 Iyengar et al.
- US 2011/0058326 Idems et al.
- US 2011/0090630 Bergeron et al.

The '464 Application is a continuation of U.S. Application Serial No. 12/641,468 filed on December 18, 2009 and the following references were specifically cited in a rejection in one or more office actions in the '468 Application (please note, repetitive or equivalent references may be omitted):

- US 6,493,440 Gromatzky
- US 2006/0012985 Archie et al.
- US 2006/0283579 Ghosh et al.

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/411,925 filed on March 26, 2009 and the following references were specifically cited in a rejection in one or more office actions in the '925 Application (please note, repetitive or equivalent references may be omitted):

- US 5,991,153 Heady et al.
- US 6,428,198 Saccomanno
- US 2006/0092348 Park
- US 2006/0177587 Ishizuka et al.

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/556,029 filed on September 9, 2009 and the following references were specifically cited in a rejection in one or more office actions in the '029 Application (please note, repetitive or equivalent references may be omitted):

- JP 2001-209126A Fujimori

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/234,307 filed on September 19, 2008 and the following references were specifically

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cited in a rejection in one or more office actions in the '307 Application (please note, repetitive or equivalent references may be omitted):

- US 2003/0104210 Azumi
- US 2005/0012722 Chon
- US 2006/0082271 Lee
- US 2007/0103866 Park
- US 2007/0212211 Chlyoda et al.
- JP 9307257 Noto

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/234,360 filed on September 19, 2008 and the following references were specifically cited in a rejection in one or more office actions in the '360 Application (please note, repetitive or equivalent references may be omitted):

- US 8,767,165 Dunn
- US 2009/0279240 Karppanen
- JP 2005/134849 Mizuno

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/237,365 filed on September 24, 2008 and the following references were specifically cited in a rejection in one or more office actions in the '365 Application (please note, repetitive or equivalent references may be omitted):

- GB 2402205 Densitron Technologies PLC
- US 5,869,919 Sato et al.
- US 6,504,713 Pandolfi
- US 2001/0001459 Savant et al.

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- US 2001/0019454 Tadic-Galeb et al.
- US 2002/0033919 Sanelle et al.
- US 2002/0149714 Anderson et al.
- US 2002/0154255 Gromatzky
- US 2004/0105159 Saccomanno et al.
- US 2005/0073632 Dunn et al.
- US 2005/0286131 Saxena et al.
- US 2007/0206158 Kinoshita et al.
- WO 2005/079129 Inssimainos Oy

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/235,200 filed on September 22, 2008 and the following references were specifically cited in a rejection in one or more office actions in the '200 Application (please note, repetitive or equivalent references may be omitted):

- US 5,748,269 Harris

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/620,330 filed on November 17, 2009 and the following references were specifically cited in a rejection in one or more office actions in the '330 Application (please note, repetitive or equivalent references may be omitted):

- No such references not already listed.

The '468 Application is a continuation-in-part of U.S. Application Serial No. 12/556,209 filed on September 9, 2009 and the following references were specifically cited in a rejection in one or more office actions in the '209 Application (please note, repetitive or equivalent references may be omitted):

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- US 4763993 Vogeley
- US 2001/0009508 Umemoto et al.

At least the Present Application and PCT/US2009/068770 share a priority claim to at least US Provisional Application Serial No. 61/138,736 filed December 18, 2008, and the following references were cited in the International Search Report for the '770 PCT Application (please note, repetitive or equivalent references may be omitted):

- US 2006/0132699 Cho et al.
- US 2006/0209266 Utsunomiya
- US 2007/0151664 Shin

The following references were cited in the national stage examination of one or more applications claiming priority to the '770 PCT Application (please note, repetitive or equivalent references may be omitted):

- EP 1951020 ISL Media Singapore PTE LTD
- EP 1408476 Barco NV
- US 2008/0285290 Ohashi et al.
- US 2010/0079949 Nakamichi et al.

At least the Present Application and PCT/US2008/083792 share a priority claim to at least US Provisional Application Serial No. 61/115,333 filed November 17, 2008, and the following references were cited in the International Search Report for the '792 PCT Application (please note, repetitive or equivalent references may be omitted):

- JP 08-194437 Matsushita Electric Works LTD.
- JP 2002-158475 Fujitsu General LTD.
- KR 10-2007-0070675 Nautilus Hyosung Inc.

The following references were cited in the national stage examination of one or more applications claiming priority to the '792 PCT Application (please note, repetitive or equivalent references may be omitted):

- EP 1762892 Hitachi LTD
- JP 1997-160512 Golden Kitsuzu KK
- JP 2001-131682 Nippon Seiki Co LTD.
- JP 2002-006282 Toshiba Corp.
- JP 2004-199675 International Business Mach Corp
- JP 2006-513577 Choi et al.
- KR 10-2000-047899 Sony Corp.
- KR 10-2004-0067701 Icurie Lab Holdings Limited
- KR 10-2007-0048294 LG Electronics Inc.
- KR 20-2000-00018 Samsung Electronics Co., Ltd.
- US 6,211,934 Habing et al.

At least the Present Application and US Application Serial No. 16/983,842 filed August 3, 2020 share a priority claim to at least the '307 Application, and the following references were specifically cited in a rejection in one or more office actions in the '842 Application (please note, repetitive or equivalent references may be omitted):

- US 6,392,727 Larson

At least the Present Application and US Application Serial No. 15/135,032 filed April 21, 2016 share a priority claim to at least the '307 Application, and the following references were specifically cited in a rejection in one or more office actions in the '032 Application (please note, repetitive or equivalent references may be omitted):

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- KR 2006-0016469 Ra Dong

At least the Present Application and US Application Serial No. 15/180,968 filed June 13, 2016 share a priority claim to at least the '330 Application, and the following references were specifically cited in a rejection in one or more office actions in the '968 Application (please note, repetitive or equivalent references may be omitted):

- No such references not already listed.

At least the Present Application and US Application Serial No. 14/803,848 filed July 20, 2015 share a priority claim to at least the '330 Application, and the following references were specifically cited in a rejection in one or more office actions in the '848 Application (please note, repetitive or equivalent references may be omitted):

- US 9,089,079 Dunn

At least the Present Application and US Application Serial No. 14/508,767 filed October 7, 2014 share a priority claim to at least the '330 Application, and the following references were specifically cited in a rejection in one or more office actions in the '767 Application (please note, repetitive or equivalent references may be omitted):

- No such references not already listed.

At least the Present Application and US Application Serial No. 13/937,777 filed July 9, 2013 share a priority claim to at least the '330 Application, and the following references were specifically cited in a rejection in one or more office actions in the '777 Application (please note, repetitive or equivalent references may be omitted):

- US 7,667,964 Kang et al.

At least the Present Application and US Application Serial No. 13/605,530 filed September 6, 2012 share a priority claim to at least the '330 Application, and the following references were specifically cited in a rejection in one or more office actions in the '530 Application (please note, repetitive or equivalent references may be omitted):

- US 7,602,469 Shin
- US 8,269,916 Ohkawa
- US 2010/0171889 Pantel et al.
- US 2007/0065091 Hinata et al.

Furthermore, Applicant respectfully submits that at least MPEP § 2004.10 states that “[w]hen in doubt, it is desirable and safest to submit information. Even though the attorney, agent, or applicant doesn’t consider it necessarily material, someone else may see it differently and embarrassing questions can be avoided. The court in *U.S. Industries v. Norton Co.*, 210 USPQ 94, 107 (N.D. N.Y. 1980) stated ‘[i]n short, the question of relevancy in close cases, should be left to the examiner and not the applicant.’ See also *LaBounty Mfg., Inc. v. U.S. Int’l Trade Comm’n*, 958 F.2d 1066, 22 USPQ2d 1025 (Fed. Cir. 1992).”

Claim Rejection Under 35 USC § 103

Examiner has rejected claims 1 and 8 under 35 USC § 103 as allegedly being obvious over US Pat. No. 5,869,919 to Sato *et. al.* (“Sato”) in view of US Pat. No. 6,211,934 to Habing *et. al.* (“Habing”). Examiner has rejected claims 1-5 and 10 under 35 USC § 103 as allegedly being obvious over Sato in view of US Pub. No. 2002/0033919 to Sanelle *et. al.* (“Sanelle”). Examiner has rejected claims 6-7 and 9 under 35 USC § 103 as allegedly being obvious over Sato in view of Sanelle and US Pub. No.

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2005/0134526 to Willem *et. al.* ("Willem"). Examiner has rejected claims 17-18 under 35

USC § 103 as allegedly being obvious over Sato in view of Willem. Examiner has rejected claim 19 under 35 USC § 103 as allegedly being obvious over Sato in view of Willem and Sanelle. Applicant respectfully traverses.

Claim 1 is amended to require that the portion of the airflow pathway extending between the electronic image assembly and the cover panel be part of a closed loop. Sato, on the other hand, teaches that the arrowed line 416 represent ambient air which enters and exits the unit. *See e.g.*, figure 4. The addition of Habing and/or Sanelle does not change this analysis as Habing and Sanelle are not cited to supply such limitations. OA of 9/30/20 at pg. 3-5. In light of the foregoing, Applicant respectfully submits that claim 1 is allowable with claims 3-7 and 10 being allowable as proper dependents therefrom.

With particular regard to claim 17, Applicant refers Examiner to the section entitled "Allowable Subject Matter", which is hereby incorporated by reference. For at least the reasons set forth more fully therein, Applicant respectfully submits that claim 17 is allowable with claims 18-19 being allowable as proper dependents therefrom.

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Conclusion

Applicant respectfully submits that the present 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 present application is respectfully encouraged.

Respectfully submitted,

Date: December 18, 2020

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