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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/000,372	01/30/2007	7168842	025789-00025	3985

4372 7590 01/10/2007
ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

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 120 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 Customer Service Center of the Office of Patent Publication at (571)-272-4200.

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

Shen-hong Chou, Kaohsiung City, TAIWAN;
Hui-Kai Chou, Taipei City, TAIWAN;

PART B - FEE(S) TRANSMITTAL

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

DEC 19 2006

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 other correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated below, 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)

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.

004372

7590

09/25/2006

ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

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.
11/000,372	12/01/2004	Shen-hong Chou	025789-00025	3985

TITLE OF INVENTION: LIGHT EMITTING DIODE BACKLIGHT PACKAGE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/26/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUNWIDDIE, MEGHAN K	2875	362-631000

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,
- (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.

1 ARENT FOX PLLC

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

AU OPTRONICS CORPORATION

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

Hsinchu, Taiwan, R.O.C.

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 credit any overpayment, to Deposit Account Number 01-2300 (enclose an extra copy of this form).

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

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Date December 19, 2006

Typed or printed name

Christopher P. Murphy

Registration No. 39,786

This collection of information 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.

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NOTICE OF ALLOWANCE AND FEE(S) DUE

004372 7590 09/25/2006

ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER

DUNWIDDIE, MEGHAN K

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 09/25/2006

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/000,372

12/01/2004

Shen-hong Chou

025789-00025

3985

TITLE OF INVENTION: LIGHT EMITTING DIODE BACKLIGHT PACKAGE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/26/2006

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
- B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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

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004372 7590 09/25/2006

ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

Certificate of Mailing or Transmission

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/000,372	12/01/2004	Shen-hong Chou	025789-00025	3985

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DUNWIDDIE, MEGHAN K	2875	362-631000

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- 3 _____

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(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 credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/000,372	12/01/2004	Shen-hong Chou	025789-00025	3985
004372	7590	09/25/2006	EXAMINER	
ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			DUNWIDDIE, MEGHAN K	
			ART UNIT	PAPER NUMBER
			2875	
DATE MAILED: 09/25/2006				

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

The Patent Term Adjustment to date is 120 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 120 day(s).

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>).

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Notice of Allowability	Application No.	Applicant(s)	
	11/000,372	CHOU ET AL.	
	Examiner	Art Unit	
	Meghan K. Dunwiddie	2875	

-- 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 amendment received on August 31, 2006.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ 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. ☐ Notice of Informal Patent Application |
| 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. ☐ Examiner's Amendment/Comment |
| 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. ☒ Examiner's Statement of Reasons for Allowance |
| | 9. ☐ Other _____. |

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The prior art when taken separately or combined fails to teach and/or show a light emitting device as set forth in Claim 1 having a fastener with a vertical member and a horizontal member. A light-emitting chip is disposed on one face of the vertical member and encased by a transparent covering, where such vertical member is disposed perpendicularly to the horizontal member and which has a circuit board disposed on one face of the horizontal member.
2. The prior art when taken separately or combined fails to teach and/or show a backlight package as set forth in Claim 3 having a fastener with a first and second portion. The first portion is disposed adjacent to a side of the light guiding plate. The first portion and the second portion are arranged in a substantially L-shaped perpendicular formation.
3. The prior art when taken separately or combined fails to teach and/or show a backlight package as set forth in Claim 7 having a fastener with a first and second portion. The first portion extends along a side of the light guiding plate and the second portion extends above the light guiding plate. The first portion and the second portion are arranged in a substantially L-shaped perpendicular formation.

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

Art Unit: 2875

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 Meghan K. Dunwiddie whose telephone number is (571) 272-8543. The examiner can normally be reached on Monday through Friday 8 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. 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.

MKD


Stephen Husar
Primary Examiner



REPLACEMENT SHEET

OK 09/12/06 MKB

CONVENTIONAL ART

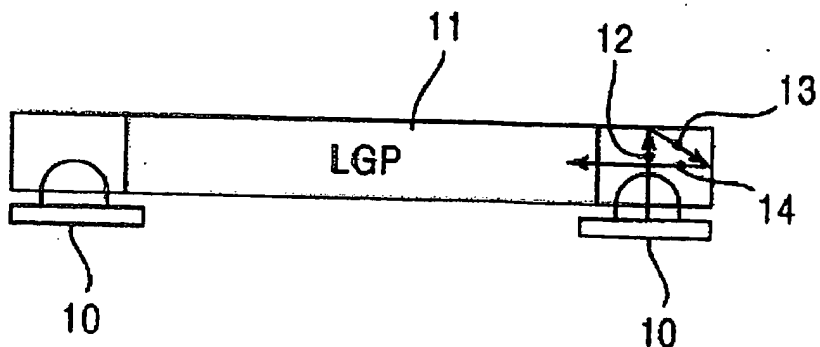


Fig.1

CONVENTIONAL ART

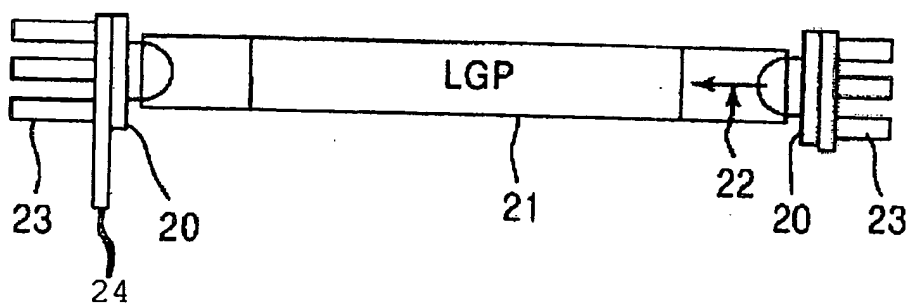


Fig.2

OK 09/12/06 MKB

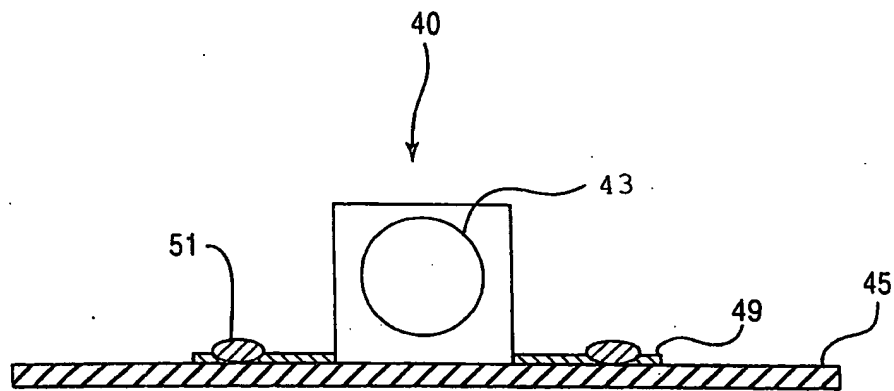


FIG.5

2875/[illegible]

[illegible]

2875

A	Appeal
O	Objected

[illegible][illegible][illegible]

Search Notes

Application/Control No.

11/000,372

Examiner

Meghan K. Dunwiddie

Applicant(s)/Patent under
Reexamination

CHOU ET AL.

Art Unit

2875

SEARCHED

Class	Subclass	Date	Examiner
362	294,370	9/12/2006	MKD
362	373,457	9/12/2006	MKD
362	458,555	9/12/2006	MKD
362	611-614	9/12/2006	MKD
362	621,630	9/12/2006	MKD
362	631,634	9/12/2006	MKD
362	800	9/12/2006	MKD
257	99	9/12/2006	MKD

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
PGPUB text search-See Interference Search Printout		9/12/2006	MKD

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Updated EAST Search.	9/12/2006	MKD



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Bib Data Sheet

CONFIRMATION NO. 3985

SERIAL NUMBER 11/000,372	FILING OR 371(c) DATE 12/01/2004 RULE	CLASS 362	GROUP ART UNIT 2875	ATTORNEY DOCKET NO. 025789-00025	
APPLICANTS Shen-hong Chou, Kaohsiung City, TAIWAN; <i>MKB</i> Hui-Kai Chou, Taipei City, TAIWAN;					
** CONTINUING DATA ***** <i>NONE MKB</i>					
** FOREIGN APPLICATIONS ***** <i>NONE MKB</i>					
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/30/2004					
Foreign Priority claimed ☐ yes ☒ no 35 USC 119 (a-d) conditions met ☐ yes ☒ no ☐ Met after Allowance Verified and Acknowledged <i>[Signature]</i> <i>MKB</i> Examiner's Signature Initials		STATE OR COUNTRY TAIWAN	SHEETS DRAWING 3	TOTAL CLAIMS 10	INDEPENDENT CLAIMS 3
ADDRESS 004372					
TITLE Light emitting diode backlight package					
FILING FEE RECEIVED 790	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L17	1	((transparent near cover\$3) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)).clm.	US-PGPUB	OR	ON	2006/09/12 16:40

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2074	362/294.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:12
L2	916	362/373.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:17
L3	630	362/457.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:25
L4	286	362/458.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:32
L5	63	362/611.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:36
L6	193	362/612.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:37
L7	248	362/613.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:39
L8	97	362/614.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:42
L9	62	362/621.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:43
L10	25	362/630.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:43
L11	37	362/631.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:43

EAST Search History

L12	60	362/634.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:44
L13	1945	362/800.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:44
L14	263	362/370.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:45
L15	600	362/555.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 15:45
L16	2520	257/99.CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/09/12 16:39
S1	0	((transparent) near (cover)) and (fastener) and (light near emitting near chip) and (circuit near board) and (conductive near (wire or means)) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28
S2	0	((transparent) near (cover)) and (fastener) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:26
S3	0	((transparent) near (cover)) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:26
S4	1	((transparent)) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:27
S5	0	(light near emitting near chip) and (circuit near board) and (conductive near (wire or means)) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28
S6	1	(light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28

EAST Search History

S7	31	(light near emitting near chip) and (circuit near board) and (heat near dissipating)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:01
S8	54	362/611.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:01
S9	163	362/612.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:06
S10	223	362/613.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 13:08
S11	84	362/614.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:10
S12	48	362/621.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:11
S13	22	362/630.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:12
S14	29	362/631.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:12
S15	44	362/634.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:05
S16	2019	362/294.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:20
S17	880	362/373.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 14:21
S18	625	362/457.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:31

EAST Search History

S19	285	362/458.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:35
S20	1883	362/800.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:38
S21	5598	S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:05
S22	96	S21 and (light near emitting near chip)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:37
S23	9	S21 and (chip) and (circuit near board) and ((conductive near means) or (conductive near wire)) and (heat near (dissipat\$3))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:49
S24	1	"6976779".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:52
S25	1	"5711592".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:52
S26	1	"6508564".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 13:08
S27	564	362/555.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 09:12
S28	261	362/370.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18
S29	2403	257/99.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:26
S30	261	362/370.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18

EAST Search History

S31	16	S30 and ((light near emitting near chip) or (chip) or (LED))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18
S32	2403	257/99.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:27
S33	16	S32 and (L near shape)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:27



172

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Confirmation No.: 3985

Shen-hong Chou et al.

Art Unit: 2875

Serial No.: 11/000,372

Examiner: Meghan K. Dunwiddie

Filed: 12/01/2004

Docket No.: 025789-00025

For: A LIGHT EMITTING DIODE BACKLIGHT PACKAGE

RESPONSE UNDER 37 C.F.R. § 1.121

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, Va. 22313-1450

DATE: August 31, 2006

Madam:

Responsive to the Office Action dated June 1, 2006, entry of the following amendment is respectfully requested.

Amendments to the Drawings, as requested by the Examiner, are presented in the attached replacement sheets.

Amendments to the Claims are reflected in a listing of the claims, which begins on page 3 of this paper.

Remarks/Arguments begin on page 6 of this paper.



AMENDMENTS TO THE CLAIMS

Listing of the claims:

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Original) A light emitting device, comprising:
a transparent covering;
a fastener having a vertical member and a horizontal member disposed perpendicular to each other;
a light-emitting chip disposed on one face of the vertical member and encased by the transparent covering;
a circuit board disposed on one face of the horizontal member;
at least one conductive means connecting the light-emitting chip to the circuit board; and
at least one heat-dissipating plate perpendicularly disposed on the other face of the horizontal member.

2. (Original) The light emitting device as claimed in claim 1, wherein the fastener comprises a substantially L-shaped structure.

3. (Currently Amended) A backlight package comprising:
a light guiding plate having a first side;
a first fastener having a first portion and a second portion, the first portion disposed adjacent to the first side of the light guiding plate, wherein the first portion and

the second portion ~~are substantially perpendicular to each other~~ are arranged in a substantially perpendicular relationship to form a substantially L-shaped structure; and

a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate.

4. (Currently Amended) The backlight package as claimed in claim 3, wherein the second portion extends above the light guiding plate, ~~and the first fastener composes a substantially L-shaped structure.~~

5. (Original) The backlight package as claimed in claim 3, further comprising a circuit board and a conducting wire, the circuit board connecting the second portion, and the conducting wire electrically coupling the light emitting device to the circuit board.

6. (Original) The backlight package as claimed in claim 3, further comprising a circuit board and a heat dissipating means, the circuit board connecting the second portion, and the heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon.

7. (Currently Amended) A backlight package comprising:
a light guiding plate having a first side;
a first fastener having a first portion and a second portion, the first portion extending along the first side of the light guiding plate, and the second portion extending

above the light guiding plate wherein the first portion and the second portion are arranged in a substantially perpendicular relationship to form a substantially L-shaped structure;

a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate; and

a circuit board connecting the second portion of the first fastener; and

a conducting wire electrically coupling the light emitting device to the circuit board.

8. (Original) The backlight package as claimed in claim 7, wherein the first portion is substantially perpendicular to the second portion.

9. (Original) The backlight package as claimed in claim 7, further comprising a heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon.

10. (Cancelled)

AMENDMENTS TO THE DRAWINGS

The applicants respectfully present herewith replacement Figs. 2 and 5, which include the requested changes by the Examiner. Figure 5 has been amended to change reference number "41" to reference number "43," as requested by the Examiner. Figure 2 has been amended to include reference number "24," as requested by the Examiner. No new matter has been added.

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and following remarks. The applicants acknowledge and appreciate the finding by the Examiner of allowable subject matter in claims 2, 4 and 10.

By the foregoing amendment, claims 3 and 7 have been amended to include the allowable subject matter of claims 4 and 10, respectively. Claim 10, having been fully incorporated into claim 7, is now cancelled. No new matter has been added. Thus, claims 1-9 are currently pending in the application and subject to examination.

Applicants respectfully submit that these claims are now in condition for allowance.

Rejections Under 35 USC § 102

In the outstanding Office Action, the Examiner rejected claims 3, 5, 7, and 8 under 35 USC § 102 as being anticipated by Kuwabara et al. (hereafter "Kuwabara"). As indicated by the Examiner, however, claims 4 and 10 recite allowable subject matter claiming the "substantially L-shaped structure." This limitation from those claims 4 and 10 has now been incorporated into claims 3 and 7, respectively, thereby making claims 3 and 7 as well as claims 5 and 8 depending therefore patentable over Kuwabara.

Rejection Under 35 USC § 103

In the outstanding Office Action, the Examiner rejected claim 1 under 35 USC §103(a) as being unpatentable over Kuwabara in view of Borchardt and Hochstein. Applicants respectfully traverse this rejection. Indeed, even assuming the references disclose matter as asserted by the Examiner (which they do not), the stringing of three references indicates that the Examiner has impermissibly used hindsight to reconstruct the applicants invention, and not any indication of obviousness.

First, Kuwabara fails to disclose a circuit board, much less a circuit board disposed on one face of the horizontal member, as admitted by the Examiner. Contrary to the Examiner's assertion, Kuwabara disclose only an LED substrate, and not the claimed circuit board.

Second, Borchardt, as admitted by the Examiner, does not disclose a light-emitting chip disposed on one face of the vertical member, where such vertical member is disposed perpendicularly to the horizontal member. In fact, Borchardt teaches that the vertical member should be disposed at an angle away from perpendicular. See

Borchardt, Col. 4, line 15. The Examiner gives no reason for selectively ignoring this teaching from Borchardt.

Besides improperly adding yet a third reference, the combination of Kuwabara and Borchardt does not lead to the applicants' invention, even in view of Hochstein. At best, Kuwabara and Borchardt teach placing an LED substrate at a skewed angle, but the combination of asserted references certainly does not render the invention of claim 1 obvious.

Claims 6 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuwabara in view of Hochstein. Claims 6 and 9, however, depend from amended claims 3 and 7, respectively which are now in a condition for allowance. Accordingly, the amendments to claims 3 and 7 obviate the rejection of claims 6 and 9.

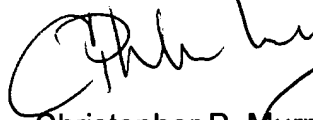
CONCLUSION

For all of the above reasons, it is respectfully submitted that the pending claims patentably distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing docket number **025789-00025**.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Chris Murphy", written over a large, loopy circular flourish.

Christopher P. Murphy
Registration No. 39,786

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CONVENTIONAL ART

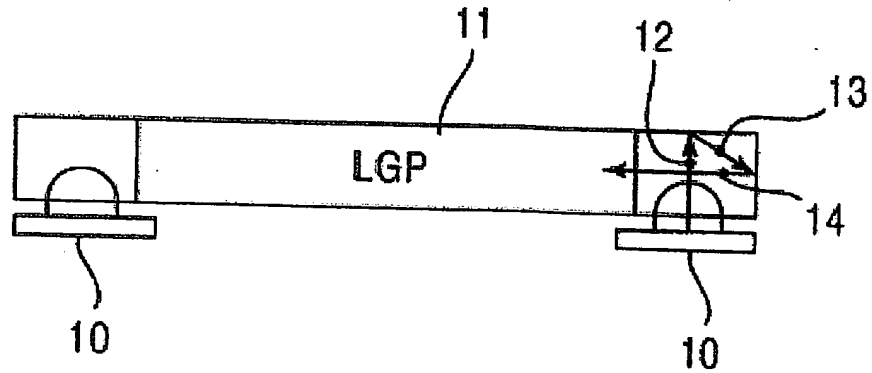


Fig.1

CONVENTIONAL ART

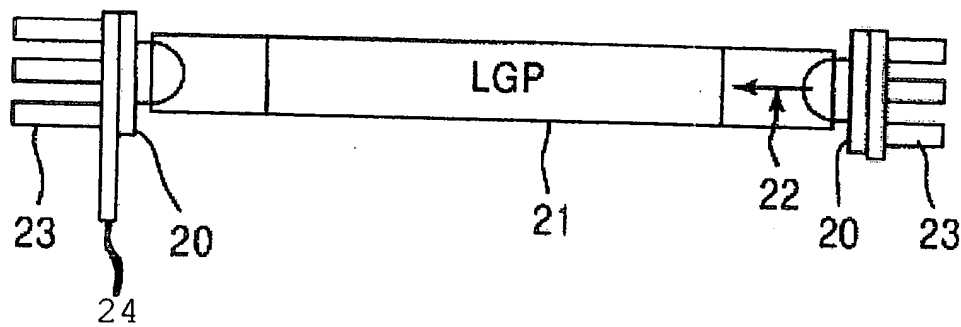


Fig.2

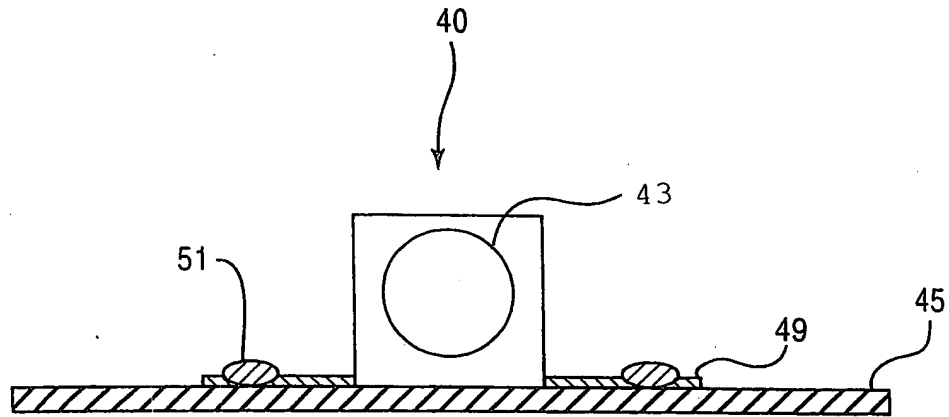


FIG.5

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2004

Application or Docket Number

11000372

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

TOTAL CLAIMS	10	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	10 minus 20 =	0
INDEPENDENT CLAIMS	2 minus 3 =	0
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	9	Minus	20 = 11
	Independent	3	Minus	3 = 0
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

SMALL ENTITY TYPE ☐ OR OTHER THAN SMALL ENTITY

RATE	FEE	OR	RATE	FEE
BASIC FEE	395.00		BASIC FEE	790.00
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL		OR	TOTAL	790

SMALL ENTITY OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total		Minus	=
	Independent		Minus	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total		Minus	=
	Independent		Minus	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. 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 in the appropriate box in column 1.

Index of Claims



Application/Control No.

11/000,372

Examiner

Meghan K. Dunwiddie

Applicant(s)/Patent under
Reexamination

CHOU ET AL.

Art Unit

2875

✓	Rejected
=	Allowed

-	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim		Date	
Final	Original		
	5/23/08		
1	✓		
2	O		
3	✓		
4	O		
5	✓		
6	✓		
7	✓		
8	✓		
9	✓		
10	O		

Claim		Date	
Final	Original		

Claim		Date	
Final	Original		



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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/000,372

12/01/2004

Shen-hong Chou

025789-00025

3985

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7590

06/01/2006

ARENT FOX PLLC

1050 CONNECTICUT AVENUE, N.W.

SUITE 400

WASHINGTON, DC 20036

EXAMINER

DUNWIDDIE, MEGHAN K

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 06/01/2006

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

Office Action Summary	Application No. 11/000,372	Applicant(s) CHOU ET AL.	
	Examiner Meghan K. Dunwiddie	Art Unit 2875	

-- 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 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ 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

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-9 is/are rejected.
- 7) ☒ Claim(s) 2,4 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2004 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).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

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).
 a) ☐ All b) ☐ Some * c) ☐ None of:
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) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application (PTO-152) |
| 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) ☐ Other: ____ |

DETAILED ACTION

This Office Action is a Non-Final Rejection in response to the application filed on December 1, 2004 by **Chou et al.**

Drawings

1. The drawings are objected to because Element **41** in Figure 5 should be a **43** [See page 7 line 16].
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: There is no "**PCB 24**" in Figure 2 [See page 3 line 8].
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

Art Unit: 2875

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 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.

5. Claims 3, 5, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by **Kuwabara et al.** (US 6508564).

6. In reference to Claim 3, **Kuwabara et al.** shows a backlight package comprising:

- A light guiding plate having a first side [Figure 1: (1)];
- A first fastener having a first portion and a second portion, the first portion disposed adjacent to the first side of the light guiding plate, wherein the first portion and the second portion are substantially perpendicular to each other [Figure 1: (22)];
- And a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate [Figure 1: (2)].

Art Unit: 2875

7. In reference to Claim 5, **Kuwabara et al.** shows:

- A circuit board and a conducting wire, the circuit board connecting the second portion, and the conducting wire electrically coupling the light emitting device to the circuit board [Figure 1: (21, 22, and 2)].

8. In reference to Claim 7, **Kuwabara et al.** shows a backlight package comprising:

- A light guiding plate having a first side [Figure 1: (1)];
- A first fastener having a first portion and a second portion, the first portion extending along the first side of the light guiding plate, and the second portion extending above the light guiding plate [Figure 1: (22)];
- A light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate [Figure 1: (2)];
- A circuit board connecting the second portion of the first fastener [Figure 1: (21)];
- And a conducting wire electrically coupling the light emitting device to the circuit board [See column 1 lines 66-67 in reference to Figure 1: (21 and 2)].

9. In reference to Claim 8, **Kuwabara et al.** shows:

- The first portion is substantially perpendicular to the second portion [Figure 1: (22)].

Claim Rejections - 35 USC § 103

10. The following is a quotation of 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 of this title, 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.

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuwabara et al.** (US 6508564) in view of **Borchardt** (US) and **Hochstein** (US 2001/0030866).

12. Regarding Claim 1, **Kuwabara et al.** shows a light emitting device, comprising:

- A transparent covering [Figure 1: (1)];
- A fastener having a vertical member and a horizontal member disposed perpendicular to each other [Figure 1: (22)];
- A light-emitting chip disposed on one face of the vertical member and encased by the transparent covering [Figure 1: (2)];
- And a circuit board [Figure 1: (21)].

13. **Kuwabara et al.** does not show:

- A circuit board disposed on one face of the horizontal member;
- And at least one conductive means connecting the light-emitting chip to the circuit board.

14. **Borchardt** teaches:

- A circuit board disposed on one face of the horizontal member [Figure 4: (11)];
- And at least one conductive means connecting the light-emitting chip to the circuit board [Figure 4: (31)].

15. It would have been obvious for one of ordinary skill in the art, at the time of the invention to provide the light emitting device of **Kuwabara et al.** with a circuit board disposed on one face of the horizontal member and at least one conductive means connecting the light emitting chip to the circuit board as taught by **Borchardt** for the purpose and advantage of providing an electrical connection to the light emitting device.

16. **Kuwabara et al.** and **Borchardt** do not show:

- At least one heat-dissipating plate perpendicularly disposed on the other face of the horizontal member.

17. However, **Hochstein** teaches:

- At least one heat-dissipating plate perpendicularly disposed on the other face of the horizontal member [Figure 2: (30 and 32)].

18. It would have been obvious for one of ordinary skill in the art, at the time of the invention to provide the light emitting device of **Kuwabara et al.** and **Borchardt** with

Art Unit: 2875

heat dissipating means as taught by **Hochstein** for the purpose and advantage of conducting electricity and heat from the light emitting device.

19. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuwabara et al.** (US 6508564) in view of **Hochstein** (US 2001/0030866).

20. Regarding Claim 6, **Kuwabara et al.** shows:

- A circuit board, the circuit board connecting the second portion [Figure 1: (21)].

21. **Kuwabara et al.** does not show:

- A heat dissipating means, the heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon.

22. **Hochstein** teaches:

- A heat dissipating means, the heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon [Figure 2: (30 and 32)].

23. It would have been obvious for one of ordinary skill in the art, at the time of the invention to provide the backlight package of **Kuwabara et al.** with heat dissipating means as taught by **Hochstein** for the purpose and advantage of conducting electricity and heat from the light emitting device.

Art Unit: 2875

24. Regarding Claim 9, **Kuwabara et al.** shows the claimed invention as cited above, but does not specifically teach a heat dissipating means attached onto the surface of the circuit board for conducting heat generating thereon.

25. **Hochstein** teaches:

- A heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon [Figure 2: (30 and 32)].

26. It would have been obvious for one of ordinary skill in the art, at the time of the invention to provide the backlight package of **Kuwabara et al.** with heat dissipating means as taught by **Hochstein** for the purpose and advantage of conducting electricity and heat from the light emitting device.

Allowable Subject Matter

27. Claims 2, 4, and 10 are 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 Meghan K. Dunwiddie whose telephone number is

Art Unit: 2875

(571)272-8543. The examiner can normally be reached on Monday through Friday 8 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571)272-2378. 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.

MKD


Stephen Husar
Primary Examiner

Notice of References Cited	Application/Control No. 11/000,372	Applicant(s)/Patent Under Reexamination CHOU ET AL.	
	Examiner Meghan K. Dunwiddie	Art Unit 2875	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,381,309	01-1995	Borchardt, Jerry L.	362/612
*	B	US-2001/0030866	10-2001	Hochstein, Peter A.	362/294
*	C	US-6,508,564	01-2003	Kuwabara et al.	362/612
	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	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.

[REDACTED]

Meghan K. Dunwiddie

2875

✓	Rejected
=	Allowed

-	(Through numeral) Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

[illegible][illegible][illegible]

Search Notes

Application/Control No.

11/000,372

Examiner

Meghan K. Dunwiddie

Applicant(s)/Patent under
Reexamination

CHOU ET AL.

Art Unit

2875

SEARCHED

Class	Subclass	Date	Examiner
362	294,373	5/23/2006	MKD
362	457,458	5/23/2006	MKD
362	611,612	5/23/2006	MKD
362	613,614	5/23/2006	MKD
362	621,630	5/23/2006	MKD
362	631,634	5/23/2006	MKD
362	800	5/23/2006	MKD
362	370,555	5/24/2006	MKD
257	99	5/24/2006	MKD

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST-(US-PGPUB; USPAT; USOCR; EPO; JPO)--See Attached Search History.	5/23/2006	MKD
Examiner Y Q. Lee suggested Class 362/611-614, 621, 630, 631, 634, 294, 373, 457, 458, and 800.	5/23/2006	MKD
Examiner Husar suggested Class 362/555 and 370 and Class 257/99.	5/24/2006	MKD



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Bib Data Sheet

CONFIRMATION NO. 3985

SERIAL NUMBER 11/000,372	FILING OR 371(c) DATE 12/01/2004 RULE	CLASS 362	GROUP ART UNIT 2875	ATTORNEY DOCKET NO. 025789-00025	
APPLICANTS Shen-hong Chou, Kaohsiung City, TAIWAN; MKD Hui-Kai Chou, Taipei City, TAIWAN;					
** CONTINUING DATA ***** NONE MKD					
** FOREIGN APPLICATIONS ***** NONE MKD					
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/30/2004					
Foreign Priority claimed ☐ yes ☒ no 35 USC 119 (a-d) conditions met ☐ yes ☒ no ☐ Met after Allowance Verified and Acknowledged <i>Meghan B. Smith</i> <i>MS</i> Examiner's Signature Initials		STATE OR COUNTRY TAIWAN	SHEETS DRAWING 3	TOTAL CLAIMS 10	INDEPENDENT CLAIMS 3
ADDRESS 004372					
TITLE Light emitting diode backlight package					
FILING FEE RECEIVED 790	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	261	362/370.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18
L3	16	L2 and ((light near emitting near chip) or (chip) or (LED))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18
S1	0	((transparent) near (cover)) and (fastener) and (light near emitting near chip) and (circuit near board) and (conductive near (wire or means)) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28
S2	0	((transparent) near (cover)) and (fastener) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:26
S3	0	((transparent) near (cover)) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:26
S4	1	((transparent)) and (light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:27
S5	0	(light near emitting near chip) and (circuit near board) and (conductive near (wire or means)) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28
S6	1	(light near emitting near chip) and (circuit near board) and (heat near dissipating near plate)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 09:28
S7	31	(light near emitting near chip) and (circuit near board) and (heat near dissipating)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:01
S8	54	362/611.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:01
S9	163	362/612.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:06

EAST Search History

S10	223	362/613.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 13:08
S11	84	362/614.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:10
S12	48	362/621.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:11
S13	22	362/630.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:12
S14	29	362/631.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:12
S15	44	362/634.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:05
S16	2019	362/294.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:20
S17	880	362/373.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 14:21
S18	625	362/457.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:31
S19	285	362/458.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:35
S20	1883	362/800.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 10:38
S21	5598	S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:05

EAST Search History

S22	96	S21 and (light near emitting near chip)	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:37
S23	9	S21 and (chip) and (circuit near board) and ((conductive near means) or (conductive near wire)) and (heat near (dissipat\$3))	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:49
S24	1	"6976779".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:52
S25	1	"5711592".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 11:52
S26	1	"6508564".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/23 13:08
S27	564	362/555.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 09:12
S28	261	362/370.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 12:18
S29	2403	257/99.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	ON	2006/05/24 09:39

**NONPROVISIONAL PATENT
APPLICATION TRANSMITTAL RULE §1.53(b)
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Customer No. 004372
ARENT FOX PLLC
1050 Connecticut Avenue, N.W., Suite 400
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Telephone: (202) 857-6000
Facsimile: (202) 638-4810

Docket No. 025789-00025
Date: December 1, 2004

Director of the U.S. PTO
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing under 37 C.F.R. §1.53(b) is a nonprovisional patent application:

For (Title): A LIGHT EMITTING DIODE BACKLIGHT PACKAGE

By (Inventors): Shen-Hong CHOU and Hui-Kai CHOU

- ☒ 12 pages of Specification/Claims 1-10/Abstract are attached.
☒ Formal drawings (Fig(s). 1-5; 3 sheet(s)) is/are attached.
☒ A Declaration and Power of Attorney is attached.
☒ An assignment of the invention to AU OPTRONICS CORPORATION is attached, along with Form PTO-1595 and a check for \$40.00.
☐ An Information Disclosure Statement is attached, along with Form PTO-1449, and _____ reference(s).
☐ This application is entitled to Small Entity Status.
☐ A Preliminary Amendment is attached.
☐ Please amend the specification by inserting before the first line the sentence --This nonprovisional application claims the benefit of U.S. Provisional Application No. _____, filed _____, --
☐ Priority of foreign application No. _____ filed _____ in _____ is claimed under 35 U.S.C. §119.
☐ A certified copy of the above corresponding foreign application is attached.

The filing fee is calculated below and includes claim status after entry of any Preliminary Amendment noted above:

FOR:	NO. FILED	NO. EXTRA
BASIC FEE		
TOTAL CLAIMS	10 - 20	= 0
INDEP CLAIMS	3 - 3	= 0
☐ MULTIPLE DEPENDENT CLAIMS		

SMALL ENTITY			LARGE ENTITY	
RATE	FEE	OR	RATE	FEE
	\$ 395	OR		\$ 790
x 9 =	\$	OR	x 18	\$
x 44 =	\$	OR	x 88	\$
+150 =	\$	OR	+300	\$
TOTAL	\$	OR	TOTAL	\$ 790

- ☒ A check in the amount of \$830.00 (\$790.00 for the filing fee, and \$40.00 for the Assignment Recordation Fee) is attached. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300 referencing Attorney Docket No. 025789-00025.

Respectfully submitted,

Sam Huang
Sam Huang
Registration No. 48,430

SH/grs

**NONPROVISIONAL PATENT
APPLICATION TRANSMITTAL RULE §1.53(b)
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Customer No. 004372
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Docket No. 025789-00025
Date: December 1, 2004

Director of the U.S. PTO
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing under 37 C.F.R. §1.53(b) is a nonprovisional patent application:

For (Title): A LIGHT EMITTING DIODE BACKLIGHT PACKAGE

By (Inventors): Shen-Hong CHOU and Hui-Kai CHOU

- ☒ 12 pages of Specification/Claims 1-10/Abstract are attached.
☒ Formal drawings (Fig(s). 1-5; 3 sheet(s)) is/are attached.
☒ A Declaration and Power of Attorney is attached.
☒ An assignment of the invention to AU OPTRONICS CORPORATION is attached, along with Form PTO-1595 and a check for \$40.00.
☐ An Information Disclosure Statement is attached, along with Form PTO-1449, and _____ reference(s).
☐ This application is entitled to Small Entity Status.
☐ A Preliminary Amendment is attached.
☐ Please amend the specification by inserting before the first line the sentence --This nonprovisional application claims the benefit of U.S. Provisional Application No. _____, filed _____, --
☐ Priority of foreign application No. _____ filed _____ in _____ is claimed under 35 U.S.C. §119.
☐ A certified copy of the above corresponding foreign application is attached.

The filing fee is calculated below and includes claim status after entry of any Preliminary Amendment noted above:

FOR:	NO. FILED	NO. EXTRA
BASIC FEE		
TOTAL CLAIMS	10 - 20	= 0
INDEP CLAIMS	3 - 3	= 0
☐ MULTIPLE DEPENDENT CLAIMS		

SMALL ENTITY		OR	LARGE ENTITY	
RATE	FEE		RATE	FEE
	\$ 395	OR		\$ 790
x 9 =	\$	OR	x 18	\$
x 44 =	\$	OR	x 88	\$
+150 =	\$	OR	+300	\$
TOTAL	\$	OR	TOTAL	\$ 790

- ☒ A check in the amount of \$830.00 (\$790.00 for the filing fee, and \$40.00 for the Assignment Recordation Fee) is attached. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300 referencing Attorney Docket No. 025789-00025.

Respectfully submitted,

Sam Huang
Sam Huang
Registration No. 48,430

SH/grs

A LIGHT EMITTING DIODE BACKLIGHT PACKAGE

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention generally relates to the packaging of light-emitting device backlights. In particular, the present invention relates to a light-emitting device backlight package which requires minimal space while producing maximum luminosity.

Related Art

Liquid crystal displays (LCDs) are commonly used in televisions, computers, and cellular telephones to display information to their users. The most basic function of the LCD is to act as a light switch, allowing transmission of light in one mode and blocking transmission of light in a second mode. The LCD selectively modulates light from a backlight or a reflector (or a combination of both), with these modes being referred to as transmissive mode and reflective mode, respectively. Backlighting the LCD is a popular method of providing a light source for the LCD, since backlighting the LCD allows good functionality in low ambient light conditions and also provides enhanced contrast ratios. However, since conventional LCDs do not have high transmissivities (with most being less

than 50% transmissive), it is important that the backlight be as efficient as possible.

There are currently a variety of backlight devices that are utilized and proposed. Important factors in the design of these devices are the configuration and their associated printed circuit boards (PCBs) relative to the light guiding plate (LGP). LED backlight devices currently available are typically of two types, which are shown in Figures 1 and 2.

Figure 1 illustrates a conventional LED backlight package. In Figure 1, the LED modules 10 are shown in a conventional configuration, i.e., they are placed at the bottom of an LGP 11, at each of the two ends of the LGP 11. Each LED module 10 emits light via a ray 12 toward the top of the LGP 11 enclosure, which then reflects as ray 13 to the end of the LGP 11 enclosure closest to the LED module 10, and then reflects back along ray 14 to travel along the length of the LGP 11. For this conventional example, the emitted light must encounter two reflections prior to traveling the length of the LGP 11. For each of these reflections, energy losses are incurred due to the native imperfect reflectivity of the surfaces. These energy losses, in addition to the inherent inefficiencies they introduce, also lead to poor luminosity along the length of the LGP 11. This situation is clearly undesirable and methods have been sought to solve these problems.

Figure 2 illustrates another example of a conventional LED backlight package. This example seeks to solve the above problem of energy losses and low luminosity by placing LED modules 20 on the ends of an LGP 21. In this

example, the light rays 22 emitted by the LED modules 20 travel directly along the length of the LGP 21. Since light rays 22 undergo no reflections, light transmission is improved. The result is greatly reduced energy losses, more energy efficiency and enhanced luminosity along the length of the LGP 21.

While the example of Figure 2 is an improvement over that shown in Figure 1, the new configuration has, however, created another drawback. For conventional LED backlights, heat-dissipating plates 23 are typically placed underneath of PCB 24 to dissipate the heat generated by the electronics away from the delicate circuitry. When this is done for the example of Figure 2, the heat-dissipating plates 23 extend from the end of the LGP 21 in the longitudinal direction. This positioning is awkward and inefficient, causing critical space to be occupied by what is essentially a maintenance device, instead of using that space to contribute to the primary goal of achieving efficient light production.

Figure 3 shows in greater detail a conventional LED module 30, which includes LENS 31, a chip 32 on top of fastener 33, and conductive wiring 34 connecting the chip 32 to PCB 35 underneath of the fastener 33. Additionally, heat-dissipating plates 36 are placed underneath of the PCB 35, to channel the heat generated by the electronics.

In order to overcome these problems, what is needed is a light-emitting device backlight package which achieves direct transmission of the emitted light in the longitudinal direction of an light guiding plate, while also minimizing the space required for the packaging, thus addressing and solving problems associated with conventional systems.

SUMMARY OF THE INVENTION

It is therefore a feature of an of the present invention to provide a light emitting device backlight package, which requires minimal packing space in the longitudinal direction of a light guiding plate.

It is another feature of an embodiment of the present invention to provide a light emitting device backlight package, which transmits light along the light guiding plate with minimal energy losses.

At least one of the above and other features and aspects of the present invention may be realized by providing a light emitting device backlight package having a fastener of a novel shape, which provides a first surface to which a chip and light emitting device module attach, while also providing a second surface for attachment of a second fastener, or a PCB. In this way, the light emitting device emits light longitudinally along a light guiding plate, thus optimizing the travel path of the emitted light, while maintaining a compact shape by placing the PCB and heat dissipating plates away from the longitudinal axis of the light guiding plate.

DESCRIPTION OF THE DRAWINGS

[0001] The above and other features and aspects of the present invention will become more apparent to those of ordinary skill in the art by describing in detail exemplary embodiments thereof with reference to the attached drawings in which:

FIG. 1 illustrates a conventional LED backlight package;

FIG. 2 illustrates a second conventional LED backlight package;

FIG. 3 illustrates a conventional LED module;

FIG. 4 illustrates a light emitting device backlight package according to an embodiment of the present invention; and

FIG. 5 illustrates a light emitting device package according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which exemplary embodiments of the invention are shown. The invention may, however, be embodied in different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. In the figures, the dimensions of layers and regions may be exaggerated for clarity of illustration. Like reference numerals refer to like elements throughout.

Figure 4 illustrates a light emitting device (LED) package incorporating light emitting device (LED) modules 40, according to an embodiment of the present invention. Basic components of LED modules 40 include a LENS 41, conducting wires 42, chip 43, an L shaped fastener formed of a first portion 44A and a second portion 44B, and a PCB 45. In this exemplary embodiment, the

first portion 44A and the second portion 44B of the L shaped fastener are oriented perpendicular to each other, as illustrated in Fig. 4. However, the present invention is not limited to the configuration shown in Fig. 4, and different configurations may be used without departing from the scope of the present invention. The LENS 41 may be any transparent material such as glass or plastic. The chip 43 and the PCB 45 are respectively disposed on the first and second portions 44A, 44B of the fastener 44. The conducting wire 42 runs from the vertically oriented chip 43 to the horizontally oriented PCB 45, and is connected to the anode lead 49 and the cathode lead 50 of the chip 43, respectively. Therefore, the PCB 45 is able to apply proper electric signals for light emission. In addition, heat-dissipating plates 46 are attached to the underside of the horizontally oriented PCB 45. Thus, PCB 45 is attached on one side to the second portion 44B of the L shaped fastener and on the other side to the heat-dissipating plates 46. The heat-dissipating plates 46 conduct, or dissipate, heat produced by electronic components disposed on the PCB 45.

The LED package shown in Fig. 4 includes a light guiding plate 48 having a longitudinal axis 47. The first portion 44A of the L shaped fastener extends along the lateral side of the light guiding plate 48 in a direction perpendicular to the longitudinal axis 47 of the light guiding plate 48. The second portion 44B of the L shaped fastener extends behind the light guiding plate 48 in a direction parallel to the longitudinal axis 47. The light emitting device modules 40 are respectively placed on the lateral sides of the light guiding plate 48, so that the

emitted light travels directly through the light guiding plate 48 along the longitudinal axis 47.

In operation, electrical signals pass from the PCB 45 through conducting wires 42 to the chip 43. Light emitting device module 40 is thus powered to emit light, with the emitted light traveling along the longitudinal axis 47 of the light guiding plate 48, thus achieving the most efficient light transmission path.

The heat generated by the electronic components disposed on PCB 45 is dissipated through the heat-dissipating plates 46 attached to the surface of PCB 45 opposite that attached to the second portion 44B of the fastener. Thus, the embodiment of the present invention shown in Fig. 4 achieves an optimal light travel path and efficient heat dissipation, while conserving valuable space in the longitudinal direction of the light guiding plate 48.

Fig. 5 illustrates a view of the LED module 40 of Fig. 4, showing the anode lead 49 attached to the PCB 45 with solder 51. Conducting wires or other conductive means may be attached to the PCB 45 with solder 51, to provide electrical communication between the PCB 45 and the chip 43. However, the present invention is not limited to the configuration shown in Fig. 5, and different configurations may be used without departing from the scope of the present invention.

By the present invention, a light emitting device backlight package includes a fastener having a first surface to which to attach a chip and a second surface for attachment of a printed circuit board. Therefore, the printed circuit board and the heat dissipating plates may be placed away from the longitudinal

axis of the light-guiding plate. Accordingly, a light emitting device having a compact shape is provided, in which light is emitted longitudinally along the light-guiding plate, thereby optimizing the travel path of the emitted light.

Exemplary embodiments of the present invention have been disclosed herein and, although specific terms are employed, they are used and are to be interpreted in a generic and descriptive sense only and not for purpose of limitation. Accordingly, it will be understood by those of ordinary skill in the art that various changes in form and details may be made without departing from the spirit and scope of the present invention as set forth in the following claims and their equivalents.

What is claimed is:

1. A light emitting device, comprising:

a transparent covering;

a fastener having a vertical member and a horizontal member disposed perpendicular to each other;

a light-emitting chip disposed on one face of the vertical member and encased by the transparent covering;

a circuit board disposed on one face of the horizontal member;

at least one conductive means connecting the light-emitting chip to the circuit board; and

at least one heat-dissipating plate perpendicularly disposed on the other face of the horizontal member.

2. The light emitting device as claimed in claim 1, wherein the fastener comprises a substantially L-shaped structure.

3. A backlight package comprising:

an light guiding plate having a first side;

a first fastener having a first portion and a second portion, the first portion disposed adjacent to the first side of the light guiding plate, wherein the first portion and the second portion are substantially perpendicular to each other; and

a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate.

4. The backlight package as claimed in claim 3, wherein the second portion extends above the light guiding plate, and the first fastener comprises a substantially L-shaped structure.

5. The backlight package as claimed in claim 3, further comprising a circuit board and a conducting wire, the circuit board connecting the second portion, and the conducting wire electrically coupling the light emitting device to the circuit board.

6. The backlight package as claimed in claim 3, further comprising a circuit board and a heat dissipating means, the circuit board connecting the second portion, and the heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon.

7. A backlight package comprising:

a light guiding plate having a first side;

a first fastener having a first portion and a second portion, the first portion extending along the first side of the light guiding plate, and the second portion extending above the light guiding plate;

a light emitting device disposed on the first portion of the first fastener for emitting a light toward the light guiding plate; and

a circuit board connecting the second portion of the first fastener; and

a conducting wire electrically coupling the light emitting device to the circuit board.

8. The backlight package as claimed in claim 7, wherein the first portion is substantially perpendicular to the second portion.

9. The backlight package as claimed in claim 7, further comprising a heat dissipating means attached onto the surface of the circuit board for conducting a heat generated thereon.

10. The backlight package as claimed in claim 7, wherein the first fastener comprises a substantially L-shaped structure.

ABSTRACT

In a light emitting device including a transparent covering, a fastener having a vertical member and a horizontal member, a light-emitting chip disposed on one face of the vertical member and encased by the transparent covering, a circuit board disposed on one face of the horizontal member, at least one conductive means connecting the light-emitting chip to the circuit board, and at least one heat-dissipating plate perpendicularly disposed on the other face of the horizontal member, light may be emitted longitudinally along a light-guiding plate, thus optimizing the travel path of the emitted light, while maintaining a compact shape by enabling placement of the printed circuit board and heat dissipating plates away from a longitudinal axis of the light-guiding plate.

CONVENTIONAL ART

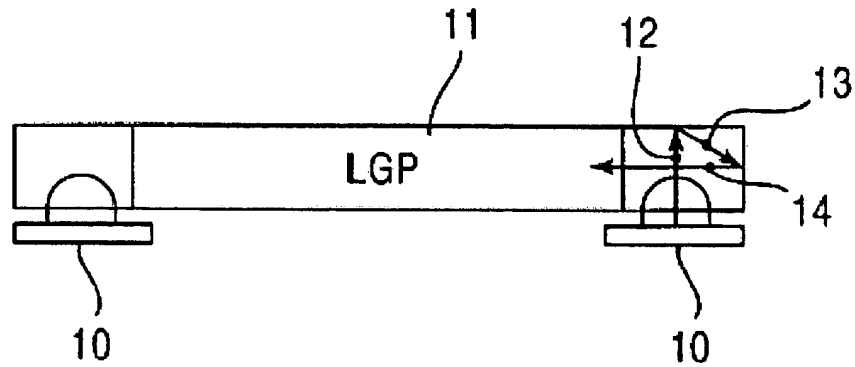


Fig.1

CONVENTIONAL ART

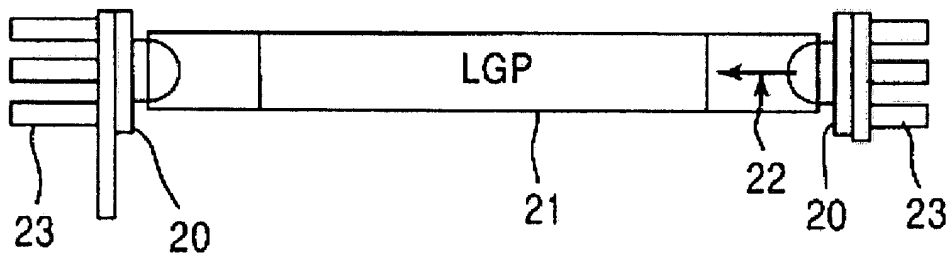


Fig.2

CONVENTIONAL ART

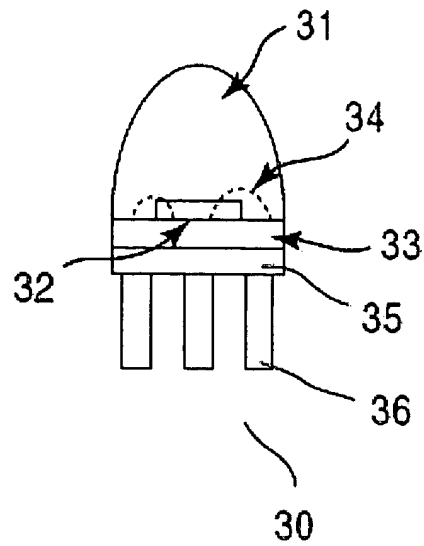


Fig. 3

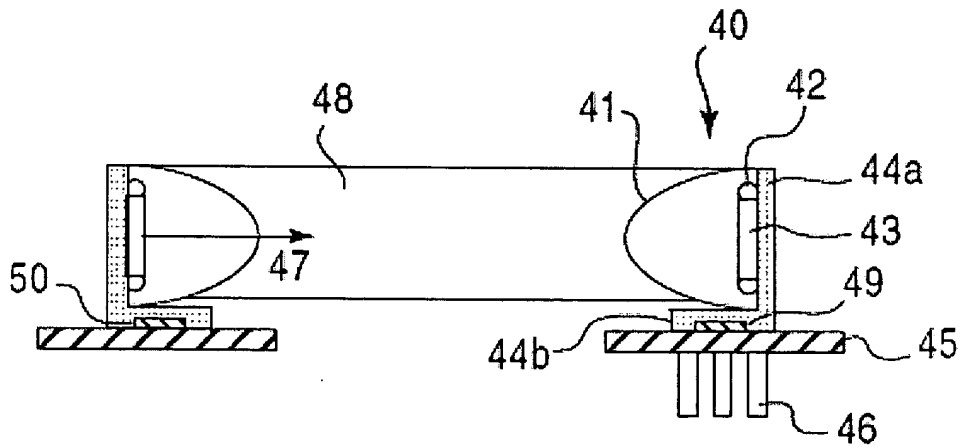


Fig. 4

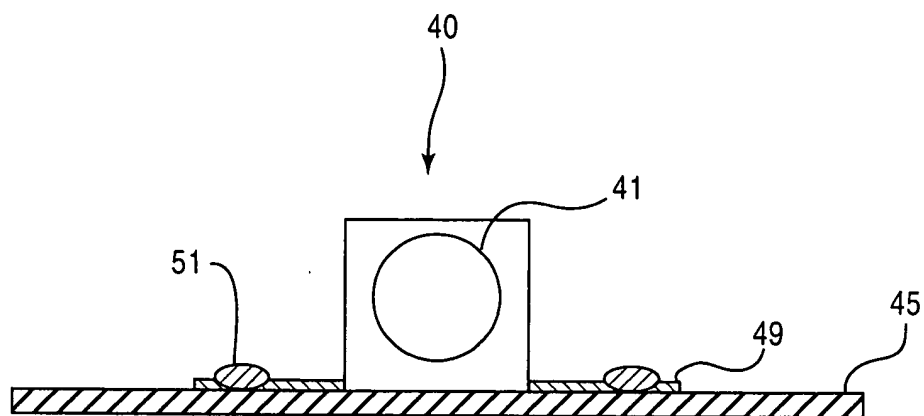


FIG.5

Declaration For U.S. Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

(Insert Title) A LIGHT EMITTING DIODE BACKLIGHT PACKAGE

the specification of which is attached hereto unless the following box is checked:

☐ was filed on _____ As PCT International Application
 Number _____ and was amended on _____
 and/or was filed on _____ As U.S. Patent Application
 Number _____ and was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below any foreign application for patent or inventor's certificate or PCT International Application having a filing date before that of the application(s) for which priority is claimed:

(List prior foreign applications)	_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	Priority Claimed ☐ Yes ☐ No
	_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐ Yes ☐ No
	_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐ Yes ☐ No

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

_____ (Application Number)	_____ (Filing Date)
_____ (Application Number)	_____ (Filing Date)

☐ See attached list for additional prior foreign or provisional applications.

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s) or § 365(c) of any PCT International application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) (U.S. or PCT) in the manner provided by the first paragraph of 35, U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(List prior U.S. Applications or PCT International applications designating the U.S.)	_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status) (patented, pending, abandoned)
	_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status) (patented, pending, abandoned)

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The undersigned hereby authorizes the U.S. attorneys named herein to accept and follow instructions from the undersigned's assignee, if any, and/or, if the undersigned is not a resident of the United States, the undersigned's domestic attorney, patent attorney or patent agent, as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorneys named herein will be so notified by the undersigned.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Citizenship _____
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Residence _____
Citizenship _____
Post Office Address _____

Full name of fifth inventor _____
Inventor's signature _____
Date
Residence _____
Citizenship _____
Post Office Address _____

Full name of sixth inventor _____
Inventor's signature _____
Date
Residence _____
Citizenship _____
Post Office Address _____

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2004

Application or Docket Number

11000372

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	10	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	10 minus 20 = *	
INDEPENDENT CLAIMS	2 minus 3 = *	
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐		

SMALL ENTITY TYPE ☐

OR OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	395.00	OR	BASIC FEE	790.00
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL		OR	TOTAL	790

SMALL ENTITY

OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐		

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐		

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. 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 entered in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

12/02/2004 SZEWDIE1 00000008 11000372

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