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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/979,852	02/14/2012	8116704	1744.2320001	3797

26111 7590 01/25/2012
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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 986 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Gregory S. Silver, St. Augustine, FL;
David F. Sorrells, Middleburg, FL;
Gregory S. Rawlins, Heathrow, FL;

PART B - FEE(S) TRANSMITTAL

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

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

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

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.

26111 7590 10/11/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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.
11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797

TITLE OF INVENTION: SWITCHING POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	01/11/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
LE, THANH C	2618	455-127100

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. **Sterne, Kessler, Goldstein & Fox P.L.L.C.**

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

ParkerVision, Inc.

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

Jacksonville, FL

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 1

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. **(online)**
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number **190036** (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

Jonathan Tuminaro

Date

11/9/12

Typed or printed name

Jonathan Tuminaro

Registration No.

61,327

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.

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

Electronic Patent Application Fee Transmittal				
Application Number:		11979852		
Filing Date:		08-Nov-2007		
Title of Invention:		SWITCHING POWER SUPPLY		
First Named Inventor/Applicant Name:		Gregory S. Silver		
Filer:		Jonathan Tuminaro/KISHA COX		
Attorney Docket Number:		1744.2320001		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1740	1740
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Printed copy of patent - no color	8001	1	3	3
Total in USD (\$)				2043

Electronic Acknowledgement Receipt

EFS ID:	11792336
Application Number:	11979852
International Application Number:	
Confirmation Number:	3797
Title of Invention:	SWITCHING POWER SUPPLY
First Named Inventor/Applicant Name:	Gregory S. Silver
Customer Number:	26111
Filer:	Jonathan Tuminaro/KISHA COX
Filer Authorized By:	Jonathan Tuminaro
Attorney Docket Number:	1744.2320001
Receipt Date:	09-JAN-2012
Filing Date:	08-NOV-2007
Time Stamp:	16:56:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 2043
RAM confirmation Number	4126
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1		17442320001IF.pdf	311681 12b2c959d6320ebb4eaf16704ae02e10b0596909	yes	2				
	Multipart Description/PDF files in .zip description								
	Document Description		Start	End					
	Miscellaneous Incoming Letter		1	1					
	Issue Fee Payment (PTO-85B)		2	2					
Warnings:									
Information:									
2	Fee Worksheet (SB06)	fee-info.pdf	33542 19785d9470a5f051c09dcbbea2d3939fd05cb999	no	2				
Warnings:									
Information:									
Total Files Size (in bytes):			345223						
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.									

JONATHAN TUMINARO
ASSOCIATE
(202) 772-8967
JTUMINAR@SKGF.COM



January 9, 2012

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Confirmation No. 3797
Mail Stop Issue Fee

Re: Allowed U.S. Utility Patent Application
Appl. No. 11/979,852; Filed: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.2320001

Sir:

In response to the **Notice of Allowance and Fee(s) Due** dated October 11, 2011, the following documents are transmitted for appropriate action by the U.S. Patent and Trademark Office:

1. Issue Fee Transmittal (Form PTOL-85); and
2. Online Credit Card Payment Authorization for \$2,043.00 to cover:
\$1,740.00 - Issue Fee;
\$300.00 - Publication Fee; and
\$3.00 - One advance copy of patent.

The above-listed documents are filed electronically through EFS-Web.

Fee payment is provided through online credit card payment. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jonathan Tuminaro
Attorney for Applicants
Registration No. 61,327

MQL/JT/kc
Enclosures

1468268_1.DOCX



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NOTICE OF ALLOWANCE AND FEE(S) DUE

26111 7590 10/11/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

LE, THANH C

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 10/11/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/979,852

11/08/2007

Gregory S. Silver

1744.2320001

3797

TITLE OF INVENTION: SWITCHING POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1740	\$300	\$0	\$2040	01/11/2012

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

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

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

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

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.

26111 7590 10/11/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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.
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11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797
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TITLE OF INVENTION: SWITCHING POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional	NO	\$1740	\$300	\$0	\$2040	01/11/2012
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EXAMINER	ART UNIT	CLASS-SUBCLASS
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LE, THANH C	2618	455-127100
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

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

2. For printing on the patent front page, list

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

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

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (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 _____

Typed or printed name _____ Registration No. _____

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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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797

26111	7590	10/11/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.		
1100 NEW YORK AVENUE, N.W.		
WASHINGTON, DC 20005		

EXAMINER	
LE, THANH C	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 10/11/2011

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 684 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 684 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>).

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	11/979,852	SILVER ET AL.	
	Examiner	Art Unit	
	THANH LE	2618	

-- 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 9/22/11.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 18-28.
4. ☐ 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.

5. ☐ 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.
 6. ☐ 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).**
7. ☐ 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)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>9/22/11</u> 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____. 7. ☐ Examiner's Amendment/Comment 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:

With respect to claim 18, the closest prior art, Earl et al., teaches a power control system for a wireless device; however, Earl general teaches a bypass circuit for controlling power supply at higher and lower voltages for the power amplifiers. The prior art of record fails to show a switching power supply comprising a transistor, an aperture generator and control module and a bypass switch control module to receive said output voltage control signal and a threshold voltage, and to control a bypass switch wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output node, and causes said input switch to de-couple said input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH LE whose telephone number is (571)272-5027. The examiner can normally be reached on 8:30 AM to 5:00 PM.

Art Unit: 2618

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. 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.

TCL
9/25/11

/Thanh C Le/
Primary Examiner, Art Unit 2618

Search Notes 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	91, 115.1, 126, 127.1, 127.2, 127.4	11/20/10	TL
330	129, 279, 282	11/20/10	TL
375	295, 296	11/20/10	TL
323	282	11/20/10	TL
Updated		9/25/11	TL

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPTA, USPGPUB) Text Search	11/20/10	TL
Updated	9/25/11	TL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	See the Attachment	9/25/11	TL

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Complete if Known

(Use as many sheets as necessary)

Application Number	11/979,852
Filing Date	November 8, 2007
First Named Inventor	Gregory S. SILVER
Art Unit	2618
Examiner Name	Le, Thanh C.
Attorney Docket Number	1744.2320001

[illegible][illegible]

Examiner Signature	/Thanh Le/	Date Considered	09/25/2011
-----------------------	------------	--------------------	------------

*EXAMINER: Initial if reference considered, whether or notation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language translation is attached.

Translation is attached

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.L./

EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	30	((power near2 supply) and (transistor same (bypass near2 switch\$4))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/09/25 20:27

9/ 25/ 2011 8:30:34 PM

**SUPPLEMENTAL
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet	1	of	1
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Complete if Known

Application Number	11/979,852
Filing Date	November 8, 2007
First Named Inventor	Gregory S. SILVER
Art Unit	2618
Examiner Name	Le, Thanh C.
Attorney Docket Number	1744.2320001

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

1419885 1.DOCX

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Electronic Patent Application Fee Transmittal				
Application Number:		11979852		
Filing Date:		08-Nov-2007		
Title of Invention:		SWITCHING POWER SUPPLY		
First Named Inventor/Applicant Name:		Gregory S. Silver		
Filer:		Jonathan Tuminaro/KISHA COX		
Attorney Docket Number:		1744.2320001		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	1801	1	810	810
Total in USD (\$)				810

Electronic Acknowledgement Receipt

EFS ID:	11019612
Application Number:	11979852
International Application Number:	
Confirmation Number:	3797
Title of Invention:	SWITCHING POWER SUPPLY
First Named Inventor/Applicant Name:	Gregory S. Silver
Customer Number:	26111
Filer:	Jonathan Tuminaro/KISHA COX
Filer Authorized By:	Jonathan Tuminaro
Attorney Docket Number:	1744.2320001
Receipt Date:	22-SEP-2011
Filing Date:	08-NOV-2007
Time Stamp:	17:23:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$810
RAM confirmation Number	7050
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1		17442320001RCEIDS.pdf	1022276 7730bb0695728798362d1292ac746a4215a0eddc	yes	8				
	Multipart Description/PDF files in .zip description								
	Document Description		Start	End					
	Miscellaneous Incoming Letter		1	1					
	Request for Continued Examination (RCE)		2	2					
	Transmittal Letter		3	7					
	Information Disclosure Statement (IDS) Form (SB08)		8	8					
Warnings:									
Information:									
2	Fee Worksheet (SB06)	fee-info.pdf	30406 41f835629ddd7d0fb6ae59496fffa2655bc8f87f	no	2				
Warnings:									
Information:									
Total Files Size (in bytes):			1052682						
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.									

JONATHAN TUMINARO
ASSOCIATE
(202) 772-8967
JTUMINAR@SKGF.COM



September 22, 2011

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Confirmation No. 3797
Art Unit 2618
Attn: Mail Stop Amendment

Re: U.S. Utility Patent Application
Application No. 11/979,852; Filing Date: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.2320001

Sir:

Transmitted herewith for appropriate action are the following documents:

1. Online Credit Card Payment Authorization in the amount of \$810.00 to cover the RCE fee;
2. Request for Continued Examination (RCE) Transmittal;
3. First Supplemental Information Disclosure Statement; and
4. Form PTO/SB/08a (1 sheet) listing 2 documents (US1-US2).

The above-listed documents are filed electronically through EFS-Web.

In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Fee payment is provided through online credit card payment. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Jonathan Tuminaro
Attorney for Applicants
Registration No. 61,327

JT/jeg/kc
Enclosures

1419915_1.DOCX

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

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/979,852
Filing Date	November 8, 2007
First Named Inventor	Gregory F. SILVER
Art Unit	2618
Examiner Name	Le, Thanh C.
Attorney Docket Number	1744.2320001

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. **Submission required under 37 CFR 1.114** Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

ii. ☐ Other _____

b. ☒ Enclosed

i. ☐ Amendment/Reply

iii. ☒ Information Disclosure Statement (IDS)

ii. ☐ Affidavit(s)/ Declaration(s)

iv. ☐ Other _____

2. Miscellaneous

a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

b. ☐ Other _____

3. Fees

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to

a. ☒ Deposit Account No. 19-0036

i. ☒ RCE fee required under 37 CFR 1.17(e)

ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

iii. ☐ Other _____

b. ☐ Check in the amount of \$ _____ enclosed

c. ☒ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	<i>Jonathan Tuminaro</i>	Date	9/22/11
Name (Print/Type)	Jonathan Tuminaro	Registration No.	61,327

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature		Date	
Name (Print/Type)			

This collection of information is required by 37 CFR 1.114. 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 1.11 and 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SILVER *et al.*

Appl. No.: 11/979,852

Filed: November 8, 2007

For: **Switching Power Supply**

Confirmation No.: 3797

Art Unit: 2618

Examiner: Le, Thanh C.

Atty. Docket: 1744.2320001

Supplemental Information Disclosure Statement

Mail Stop Amendment

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying IDS Form PTO/SB/08a equivalent are documents that may be considered material to the patentability of this application as defined in 37 C.F.R. §1.56, and in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Form based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent

application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$___ in payment of the fee under 37 C.F.R. § 1.17(p).
- ☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but on or before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$___ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure

Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

- ☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38 and MPEP 609.04(a)(III).
- ☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below in accordance with 37 C.F.R. § 1.98(a)(3).
- ☒ 7. In accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited as documents US1-US2 on the attached IDS Form are submitted.

☐ 8. Copies of the _____ documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

☐ 9. It is expected that the examiner will review the prosecution and cited art in the parent application no(s). _____ in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Form, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Jonathan Tuminaro
Attorney for Applicants
Registration No. 61,327

Date: September 22, 2011

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

1419899_1.DOCX

Atty. Dkt. No. 1744.2320001



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

26111 7590 09/01/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

LE, THANH C

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 09/01/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

11/979,852

11/08/2007

Gregory S. Silver

1744.2320001

3797

TITLE OF INVENTION: SWITCHING POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/01/2011

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

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

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

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

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.

26111 7590 09/01/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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.
-----------------	-------------	----------------------	---------------------	------------------

11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797
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TITLE OF INVENTION: SWITCHING POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/01/2011
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EXAMINER	ART UNIT	CLASS-SUBCLASS
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LE, THANH C	2618	455-127100
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

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

2. For printing on the patent front page, list

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

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

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (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 _____

Typed or printed name _____ Registration No. _____

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.

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797

26111	7590	09/01/2011
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.		
1100 NEW YORK AVENUE, N.W.		
WASHINGTON, DC 20005		

EXAMINER	
LE, THANH C	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 09/01/2011

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 684 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 684 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>).

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No.	Applicant(s)	
	11/979,852	SILVER ET AL.	
	Examiner	Art Unit	
	THANH LE	2618	

-- 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 6/9/11.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 18-28.
4. ☐ 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.

5. ☐ 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.
 6. ☐ 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).**
7. ☐ 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 ____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claims 1-17 have been cancelled.

2. This application is in condition for allowance except for the presence of claims 1-17 directed to non-elected invention without traverse. Accordingly, claims 1-17 have been cancelled.

3. The following is an examiner's statement of reasons for allowance:

With respect to claim 18, the closest prior art, Earl et al., teaches a power control system for a wireless device; however, Earl general teaches a bypass circuit for controlling power supply at higher and lower voltages for the power amplifiers. The prior art of record fails to show a switching power supply comprising a transistor, an aperture generator and control module and a bypass switch control module to receive said output voltage control signal and a threshold voltage, and to control a bypass switch wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output node, and causes said input switch to de-couple said

Art Unit: 2618

input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH LE whose telephone number is (571)272-5027. The examiner can normally be reached on 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

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.

TCL
8/25/11

/Thanh C Le/
Primary Examiner, Art Unit 2618

Notice of References Cited	Application/Control No. 11/979,852	Applicant(s)/Patent Under Reexamination SILVER ET AL.	
	Examiner THANH LE	Art Unit 2618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,245,180	07-2007	Earl et al.	455/127.1
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	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.

Search Notes 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	91, 115.1, 126, 127.1, 127.2, 127.4	11/20/10	TL
330	129, 279, 282	11/20/10	TL
375	295, 296	11/20/10	TL
323	282	11/20/10	TL
Updated		8/2/115	TL

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPTA, USPGPUB) Text Search	11/20/10	TL
Updated	8/25/11	TL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	See the Attachment	8/25/11	TL

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EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	30	((power near2 supply) and (transistor same (bypass near2 switch\$4))).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2011/08/25 14:05

8/ 25/ 2011 2:08:37 PM
C:\ Users\ tle1\ Documents\ EAST\ Workspaces\ 11979852.wsp



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BIB DATA SHEET

CONFIRMATION NO. 3797

SERIAL NUMBER 11/979,852	FILING or 371(c) DATE 11/08/2007 RULE	CLASS 455	GROUP ART UNIT 2618	ATTORNEY DOCKET NO. 1744.2320001		
APPLICANTS Gregory S. Silver, St. Augustine, FL; David F. Sorrells, Middleburg, FL; Gregory S. Rawlins, Heathrow, FL; ** CONTINUING DATA ***** This appln claims benefit of 60/857,777 11/09/2006 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/03/2007						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/THANH LE/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY FL	SHEETS DRAWINGS 19	TOTAL CLAIMS 28	INDEPENDENT CLAIMS 2
ADDRESS STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 UNITED STATES						
TITLE Switching power supply						
FILING FEE RECEIVED 1560	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			

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/979,852		Filing Date 11/08/2007		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=		X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	08/30/2011	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 11	Minus	** 28	= 0	X \$	=	OR	X \$52=	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X \$	=	OR	X \$220=	0
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$	=	OR	X \$	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=	OR	X \$	=
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/JOY j. DOBBS/

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SILVER *et al.*

Appl. No.: 11/979,852

Filed: November 8, 2007

For: **Switching Power Supply**

Confirmation No.: 3797

Art Unit: 2618

Examiner: Le, Thanh C.

Atty. Docket: 1744.2320001

Reply to Restriction Requirement

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Mail Stop Amendment

Sir:

In reply to the Office Action dated **May 9, 2011**, requesting an election of one invention to prosecute in the above-referenced patent application, Applicants hereby elect to prosecute the invention of Group II, represented by claims 18-28. This election is made without prejudice to or disclaimer of the other claims or inventions disclosed.

This election is made without traverse.

In view of the indication of allowance of claims 18-28 in the Office Action dated November 23, 2010, Applicants believe that the present application is in condition for allowance.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees

required therefor are hereby authorized to be charged to our Deposit Account No.
19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Yasser M. Mourtada
Attorney for Applicants
Registration No. 61,056

Date: 6 - 9 - 2011

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600
1361538_1.DOCX

Electronic Acknowledgement Receipt

EFS ID:	10271736
Application Number:	11979852
International Application Number:	
Confirmation Number:	3797
Title of Invention:	Switching power supply
First Named Inventor/Applicant Name:	Gregory S. Silver
Customer Number:	26111
Filer:	Yasser Mourtada/Maya Bennett
Filer Authorized By:	Yasser Mourtada
Attorney Docket Number:	1744.2320001
Receipt Date:	09-JUN-2011
Filing Date:	08-NOV-2007
Time Stamp:	17:02:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		17442320001rrq.pdf	285824 3d0b61f220ed12b27b3cff21d9843e5030fb832e	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Miscellaneous Incoming Letter	1	1
	Response to Election / Restriction Filed	2	3
Warnings:			
Information:			
		Total Files Size (in bytes):	285824
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

YASSER MOURTADA
ASSOCIATE
(202) 772-8812
YMOURTAD@SKGF.COM



June 9, 2011

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Re: U.S. Utility Patent Application
Appl. No. 11/979,852; Filed: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.2320001

Sir:

Transmitted herewith for appropriate action is the following document:

Reply to Restriction Requirement.

The above-listed documents are filed electronically through EFS-Web.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in cursive script, appearing to read 'Ym'.

Yasser M. Mourtada
Attorney for Applicants
Registration No. 61,056

MQL/Y-M:mlb
Enclosures
1372472_1.DOC

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/979,852		Filing Date 11/08/2007		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=	OR	X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
			TOTAL			TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	06/09/2011	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 28	Minus	** 28	=	0	OR	X \$52=	0	
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	=	0	OR	X \$220=	0	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR			
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=		OR	X \$	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		OR	X \$	=	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR			
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/MINNIE JACKSON/

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/979,852

11/08/2007

Gregory S. Silver

1744.2320001

3797

26111

7590

05/09/2011

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

LE, THANH C

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

05/09/2011

PAPER

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

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

Office Action Summary	Application No. 11/979,852	Applicant(s) SILVER ET AL.	
	Examiner THANH LE	Art Unit 2618	

-- 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 1 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 23 February 2011.
- 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) 1-28 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) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-28 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 _____ 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) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-17, drawn to system for controlling power amplification system based on the selected modulation scheme, classified in class 455, subclass 127.1.
 - II. Claims 18-28, drawn to a power supply with an arrangement of transistor, aperture and bypass switch, classified in class 455, subclass 343.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as using bypass switch for de-coupling input voltage of the transistor when the output voltage control signal exceeds the threshold voltage . See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a

Art Unit: 2618

continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because at least the following reason(s) apply:

Differences in terms of search fields.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to

Art Unit: 2618

be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH LE whose telephone number is (571)272-5027. The examiner can normally be reached on 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

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.

TCL
5/7/11

/Thanh C Le/
Primary Examiner, Art Unit 2618

<i>Index of Claims</i> 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	11/20/2010	05/07/2011						
	1	✓	÷						
	2	✓	÷						
	3	✓	÷						
	4	✓	÷						
	5	✓	÷						
	6	✓	÷						
	7	✓	÷						
	8	✓	÷						
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	24	✓	÷						
	25	✓	÷						
	26	✓	÷						
	27	✓	÷						
	28	✓	÷						

Search Notes 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	91, 115.1, 126, 127.1, 127.2, 127.4	11/20/10	TL
330	129, 279, 282	11/20/10	TL
375	295, 296	11/20/10	TL
323	282	11/20/10	TL
Updated		5/7/11	TL

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPTA, USPGPUB) Text Search	11/20/10	TL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SILVER *et al.*

Appl. No.: 11/979,852

Filed: November 8, 2007

For: **Switching Power Supply**

Confirmation No.: 3797

Art Unit: 2618

Examiner: Le, Thanh C.

Atty. Docket: 1744.2320001

Amendment and Reply under 37 C.F.R. § 1.111

Mail Stop Amendment

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the Office Action dated **November 23, 2010**, Applicants submit the following Amendment and Remarks.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks and Arguments begin on page 7 of this paper.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A method for enhancing system efficiency in a power ~~amplifier~~ amplification system, comprising:

determining output power characteristics of a selected modulation scheme to be employed in data transmission;

determining a probable output power point of operation for said selected modulation scheme based on said output power characteristics; and

controlling an output stage power supply within the power amplification system to operate at improved efficiency at said probable output power point of operation.

2. (Original) The method of claim 1, wherein said probable output power point of operation is the most probable output power point of operation.

3. (Original) The method of claim 1, wherein said output power characteristics comprise a probability distribution function of output power using said selected modulation scheme.

4. (Original) The method of claim 1, wherein said output power characteristics are determined according to network statistics.

5. (Currently Amended) The method of claim 1, wherein the power ~~amplifier~~ amplification system includes [[is]] a traditional power amplifier.

6. (Currently Amended) The method of claim 1, wherein the power ~~amplifier~~ amplification system includes ~~[[is]]~~ a vector power amplifier.

7. (Currently Amended) The method of claim 1, wherein the power ~~amplifier~~ amplification system includes ~~[[is]]~~ a multiple-input-single-output (MISO) power amplifier.

8. (Original) The method of claim 1, wherein the selected modulation scheme is any one of GSM, W-CDMA, CDMA 2000, EvDO, EDGE, HSUPA, and OFDM.

9. (Currently Amended) The method of claim 1, further comprising:
bypassing said output stage power supply when the output power of the power ~~amplifier~~ amplification system exceeds a determined bypass switch threshold, thereby increasing the efficiency of said output stage power supply for output powers exceeding said threshold.

10. (Currently Amended) The method of claim 1, further comprising bypassing said output stage power supply when the noise power on or near an output frequency of said power ~~amplifier~~ amplification system exceeds a threshold.

11. (Currently Amended) The method of claim 9, further comprising wirelessly providing information to the power ~~amplifier~~ amplification system to change said bypass switch threshold.

12. (Original) The method of claim 11, wherein the wirelessly provided information is sent from a wireless network

13. (Original) The method of claim 11, wherein the wirelessly provided information is sent from another device.

14. (Original) The method of claim 9, wherein the bypass switch threshold is modified based on battery voltage.

15. (Original) The method of claim 9, wherein the bypass switch threshold is modified based on battery life requirements.

16. (Original) The method of claim 9, wherein the bypass switch threshold is modified based on output power requirements.

17. (Original) The method of claim 9, wherein the bypass switch threshold is modified based on power supply current output requirements.

18. (Original) A power supply, comprising:
a transistor to receive, through an input switch, an input voltage, and comprising an output node;

an aperture generator and control module to receive an output voltage control signal, and to control said input switch; and

a bypass switch control module to receive said output voltage control signal and a threshold voltage, and to control a bypass switch;

wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output node, and causes said input switch to de-couple said input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage.

19. (Original) The power supply of claim 18, wherein said output voltage control signal is received from an amplification stage being powered by the power supply.

20. (Original) The power supply of claim 18, wherein said bypass switch control module controls said aperture generator and control module, in order to control said input switch.

21. (Original) The power supply of claim 18, wherein said aperture generator and control module controls an input node of said transistor, thereby controlling the point of operation and gain of said transistor.

22. (Original) The power supply of claim 18, wherein said aperture generator and control module controls said transistor according to said output voltage control signal.

23. (Original) The power supply of claim 18, wherein said aperture generator and control module receives a power supply output feedback signal and controls said transistor according to said feedback signal.

24. (Original) The power supply of claim 18, wherein said transistor comprises one or more of NMOS transistors, PMOS transistors, NPN transistors, and PNP transistors.

25. (Original) The power supply of claim 18, wherein said bypass switch control module compares said output voltage control signal and said threshold voltage.

26. (Original) The power supply of claim 18, wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output voltage node, and causes said input switch to de-couple said input voltage from said transistor, when noise power on or substantially near an output frequency exceeds a threshold.

27. (Original) The power supply of claim 18, wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output voltage node, and causes said input switch to de-couple said input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage by the value of a hysteresis control signal.

28. (Original) The power supply of claim 18, further comprising:

a load current sensing circuit, coupled to said output node of the power supply, to measure load current variations and to provide a feedback signal to said bypass switch control module.

Remarks

Reconsideration of this Application is respectfully requested. Claims 1-28 are pending in the application, with claims 1 and 18 being the independent claims. Claims 1, 5-7, and 9-11 are sought to be amended to better present features of the claimed invention. These changes are believed to introduce no new matter, and their entry is respectfully requested. Claims 18-28 are allowed.

Based on the above amendments and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1-17 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent 7,047,032 to Yun *et al.* ("Yun"), in view of U.S. Patent Application Publication No. 2006/0001410 to Ishikawa *et al.* ("Ishikawa").

Independent claim 1, as amended, recites a "method for enhancing system efficiency in a power amplification system" which includes:

determining output power characteristics of a selected modulation scheme to be employed in data transmission;
determining a probable output power point of operation for said selected modulation scheme based on said output power characteristics; and
controlling an output stage power supply within the power amplification system to operate at improved efficiency at said probable output power point of operation.

The method of claim 1 is performed within a power amplification system in order to improve the system efficiency of the power amplification. In particular, the method operates to improve the efficiency of an "output stage power supply" at a "probable

output power point of operation” based on the “selected modulation scheme” used for transmission. The “probable output power point of operation” for the selected modulation scheme is determined based on “output power characteristics” of the selected modulation scheme.

The Office Action relies on Yun as allegedly disclosing each and every feature of independent claim 1, except for the fact that “the power control process [is done] using [a] power supply within the power amplification system.” Office Action, page 2. Applicants respectfully disagree.

Yun discloses a method for power control between a base station and a mobile station. Thus, Yun is not related to “enhancing system efficiency in a power amplification system,” let alone enhancing system efficiency by improving the efficiency of an output stage power supply of the power amplification system.

As described in Yun, Yun's method is performed by both a base station and a mobile station. *See e.g.*, Yun, FIG. 3. In particular, as shown in FIG. 3 of Yun, steps 301-304 are performed by the base station, and steps 305-307 are performed by the mobile station. In summary, Yun's method includes the base station extracting a SNR (signal to noise ration) and determining a modulation/coding scheme from a signal received from the mobile station, determining a power control value based on the extracted SNR and the determined modulation/coding scheme, and transmitting a power control command to the mobile station. The mobile station extracts the power command from the signal transmitted by the base station, computes a power level based on the power command, and uses the computed power level to amplify signals accordingly. *See* Yun, FIG. 3; *see also*, Yun, 5:21-62.

Accordingly, Yun's method is significantly different from and unrelated to the method of claim 1. For example, independent claim 1 recites "determining output power characteristics of a selected modulation scheme to be employed in data transmission." As described in Applicant's specification, the output power characteristics of a selected modulation scheme describe, for example, the percentage of time spent transmitting using a particular output power level when the modulation scheme is used. *See e.g.*, Applicant's specification, paragraphs [0040]-[0042]. This step is not performed in Yun. In particular, contrary to the Examiner's allegation, this step is not performed in steps 301-303 of Yun. Indeed, the SNR extracted from a signal is not representative of "output power characteristics" of a "modulation scheme."

Independent claim 1 also recites "determining a probable output power point of operation for said selected modulation scheme based on said output power characteristics." This step is also not disclosed by Yun. In particular, contrary to the Examiner's allegation, this step is not performed in steps 304 and 305 of Yun, which include inserting a power control command by the base station and extracting the power control command by the mobile station. *See Yun*, FIG. 3.

For the reasons above, independent claim 1 is patentable over Yun and Ishikawa. Reconsideration and withdrawal of the rejection of independent claim 1 and of claims 2-17 which depend therefrom is respectfully requested.

Conclusion

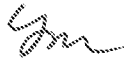
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn.

Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Yasser M. Mourtada
Attorney for Applicants
Registration No. 61,056

Date: 2-23-2011

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

1290855_1.DOC

Electronic Acknowledgement Receipt

EFS ID:	9516869
Application Number:	11979852
International Application Number:	
Confirmation Number:	3797
Title of Invention:	Switching power supply
First Named Inventor/Applicant Name:	Gregory S. Silver
Customer Number:	26111
Filer:	Yasser Mourtada/Maya Bennett
Filer Authorized By:	Yasser Mourtada
Attorney Docket Number:	1744.2320001
Receipt Date:	23-FEB-2011
Filing Date:	08-NOV-2007
Time Stamp:	17:11:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		17442320001amendment.pdf	1166005 d537601b9cab3068dc6ad8598f1a7b1ec1c426b0	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Miscellaneous Incoming Letter	1	1
	Amendment/Req. Reconsideration-After Non-Final Reject	2	2
	Claims	3	7
	Applicant Arguments/Remarks Made in an Amendment	8	11

Warnings:

Information:

Total Files Size (in bytes):	1166005
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Yasser M. Mourtada
Associate
202-772-8812
YMOURTAD@SKGF.COM



February 23, 2011

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Re: U.S. Utility Patent Application
Appl. No. 11/979,852; Filed: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.2320001

Sir:

Transmitted herewith for appropriate action is the following document

Amendment and Reply under 37 C.F.R. § 1.111.

The above-listed documents are filed electronically through EFS-Web.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Yasser M. Mourtada
Attorney for Applicants
Registration No. 61,056

ML/Y-M:mlb
Enclosures
1324899_1.DOC

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/979,852		Filing Date 11/08/2007		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=	OR	X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
			TOTAL			TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	02/23/2011	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 28	Minus	** 28	=	0	OR	X \$52=	0	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	=	0	OR	X \$220=	0	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	Total (37 CFR 1.16(i))	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=		OR	X \$	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		OR	X \$	=	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.										
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".										
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/979,852	11/08/2007	Gregory S. Silver	1744.2320001	3797

26111 7590 11/23/2010
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

LE, THANH C

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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11/23/2010

PAPER

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

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

Office Action Summary	Application No. 11/979,852	Applicant(s) SILVER ET AL.	
	Examiner THANH C. LE	Art Unit 2618	

-- 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 08 November 2007.
- 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) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-28 is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ 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 _____ 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) |
| 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/18/08</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. 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.

2. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yun (7,047,032) in view of Ishikawa (US2006/0001410).

With respect to claim 1, Yun teaches a wireless system such as CDMA system (Col. 1, lines 20-39) comprising determining output power characteristics of a selected modulation scheme to be employed in data transmission (Fig. 3, Nos. 301-303); determining a probable output power point of operation for said selected modulation scheme based on said output power characteristics (Fig. 3, Nos. 304-305; and controlling the amplifier within the system to operate at improved efficiency at said probable output power point of operation (Fig. 3, Nos. 306-307; Col. 4, lines 34-63 and Col. 5, lines 21-62). Yun teaches that the output power of the wireless device can be adjusted but fails to teach the power control process using power supply within the power amplification system. Ishikawa, figure 6, teaches a method for enhancing system efficiency in a power amplifier (see paragraphs [0018]; [0040]; [0078]). The power adjustment of the power amplifier stage can be done by way of controlling power supply apparatus (paragraphs. [0082-0084]). Therefore, it would have been obvious to one skill in the art to modify the Yun system by providing the teaching of Ishikawa power

Art Unit: 2618

control method therein in order to provide improved efficiency of operation in addition to enhanced load driving capability.

With respect to claim 2, Yun in view of Ishikawa teaches wherein said probable output power point of operation is the most probable output power point of operation (see computing step 306 in figure 3).

With respect to claims 3-4, Yun in view of Ishikawa fails to teach a probability distribution function (or network statistic) of output power using said selected modulation scheme. Since Yun teaches the extract the modulation and coding scheme and compute the power (steps 3-04-305), the probability is 100 percents.

With respect to claim 5, Yun in view of Ishikawa teaches the method of claim 1. Ishikawa further teaches wherein the power amplifier is a traditional power amplifier (see Fig. 6; paragraph [0077]).

With respect to claims 6-7, although the modified Yun system does not teach vector (or MISO) power amplifier, any type of power amplifier can be used as long as it provide power amplifications according to the designated modulation scheme.

Therefore, the use of vector (or MISO) power amplifier would have been considered obvious to one skill in the art.

With respect to claim 8, Yun teaches a cellular system using IS-95 standards and CDMA scheme.

With respect to claims 9-10, Ishikawa further teaches a method of bypassing said output stage power supply when the output power of the power amplifier exceeds a

Art Unit: 2618

determined bypass switch threshold, thereby increasing the efficiency of said output stage power supply for output powers exceeding said threshold (see paragraph [0049]).

With respect to claim 11, since Yun teaches the wireless link for providing power information the modified Yun system wirelessly provides information to change the bypass switch threshold.

With respect to claims 12-13, Yun teaches that the provided information is sent from a wireless network (Fig. 2).

With respect to claim 14, Ishikawa further teaches wherein the bypass switch threshold is modified based on battery voltage (see paragraph [0084]).

With respect to claim 15, Ishikawa further teaches wherein the bypass switch threshold is modified based on battery life requirements (see paragraph [0084]).

With respect to claim 16, Ishikawa further teaches wherein the bypass switch threshold is modified based on output power requirements (see paragraph [0036]).

With respect to claim 17, Ishikawa further teaches the bypass switch threshold is modified based on power supply current output requirements (see paragraph [0036]).

Allowable Subject Matter

3. Claims 18-28 are allowed.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Awad (US 2005/0025254) teaches power control process based on the modulation and coding scheme.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH C. LE whose telephone number is (571)272-5027. The examiner can normally be reached on 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. 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.

TCL
11/20/10

/Thanh C Le/
Primary Examiner, Art Unit 2618

<i>Index of Claims</i> 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	11/20/2010								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
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	23	✓								
	24	✓								
	25	✓								
	26	✓								
	27	✓								
	28	✓								

Search Notes 	Application/Control No. 11979852	Applicant(s)/Patent Under Reexamination SILVER ET AL.
	Examiner THANH C LE	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	91, 115.1, 126, 127.1, 127.2, 127.4	11/20/10	TL
330	129, 279, 282	11/20/10	TL
375	295, 296	11/20/10	TL
323	282	11/20/10	TL

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (USPTA, USPGPUB) Text Search	11/20/10	TL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	11/979,852
				Filing Date	November 8, 2007
				Inventors	SILVER <i>et al.</i>
				Art Unit	2611
				Examiner Name	(to be assigned)
Sheet	1	of	1	Attorney Docket Number	1744.216000G

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM/DD/YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	US1	2004/0203992 A1	10/14/2004	Yun	
	US2	2005/0007083 A1	01/13/2005	Yang <i>et al.</i>	
	US3	2005/0141251 A1	06/30/2005	Allwyn <i>et al.</i>	
	US4	2005/0162142 A1	07/28/2005	Kernahan <i>et al.</i>	
	US5	2006/0001410 A1	01/05/2006	Ishikawa <i>et al.</i>	
	US6	2006/0022656 A1	02/02/2006	Leung <i>et al.</i>	
	US7	2006/0104384 A1	05/18/2006	Sorrells <i>et al.</i>	
	US8				
	US9				
	US10				
	US11				
	US12				
	US13				
	US14				
	US15				
	US16				
	US17				
	US18				
	US19				
	US20				

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM/YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
	FP1					
	FP2					
	FP3					
	FP4					
	FP5					
	FP6					
	FP7					
	FP8					
	FP9					

849167_1.DOC

Examiner Signature	/Thanh Le/	Date Considered	11/20/2010
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. 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 2 hours 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, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.L./

Equivalent of Form PTO/SB/08b (01-08)

Approved for use through 01/31/2008. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO		Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	11/979,852	
		Filing Date	November 8, 2007	
		Inventors	SILVER <i>et al.</i>	
		Art Unit	2611	
		Examiner Name	(to be assigned)	
Sheet	1	1	Attorney Docket Number	1744.216000G

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	NPL1	International Search Report for PCT/US2007/023461, dated June 18, 2008, 10 pp.	
	NPL2		
	NPL3		
	NPL4		
	NPL5		
	NPL6		
	NPL7		
	NPL8		
	NPL9		
	NPL10		

849168_1.DOC

Examiner Signature	/Thanh Le/	Date Considered	11/20/2010
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. 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 2 hours 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, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.L./

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SILVER *et al.*

Appl. No.: 11/979,852

Filed: November 8, 2007

For: **Switching Power Supply**

Confirmation No.: 3797

Art Unit: 2611

Examiner: (to be assigned)

Atty. Docket: 1744.216000G

Information Disclosure Statement

Mail Stop Amendment

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying IDS Forms are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Applicants have listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.
- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the

filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p).

☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☐ 5. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38.
- ☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below in accordance with 37 C.F.R. § 1.98(a)(3).
- ☒ 7. Copy of NPL1 is submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2), no copies of U.S. patents and patent application publications cited on the attached IDS Forms are submitted.
- ☐ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

- ☐ 9. It is expected that the examiner will review the prosecution and cited art in the parent application no. 11/256,172 in accordance with MPEP 2001.06(b), and indicate in the next communication from the office that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Yasser M. Mountada Reg. # 61,056

for Michael Q. Lee
Attorney for Applicants
Registration No. 35,239

Date: 7-18-2008

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600
849157_1.DOC

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	11/979,852
				Filing Date	November 8, 2007
				Inventors	SILVER <i>et al.</i>
				Art Unit	2611
				Examiner Name	(to be assigned)
Sheet	1	of	1	Attorney Docket Number	1744.216000G

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM/DD/YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	US1	2004/0203992 A1	10/14/2004	Yun	
	US2	2005/0007083 A1	01/13/2005	Yang <i>et al.</i>	
	US3	2005/0141251 A1	06/30/2005	Allwyn <i>et al.</i>	
	US4	2005/0162142 A1	07/28/2005	Kemahan <i>et al.</i>	
	US5	2006/0001410 A1	01/05/2006	Ishikawa <i>et al.</i>	
	US6	2006/0022656 A1	02/02/2006	Leung <i>et al.</i>	
	US7	2006/0104384 A1	05/18/2006	Sorrells <i>et al.</i>	
	US8				
	US9				
	US10				
	US11				
	US12				
	US13				
	US14				
	US15				
	US16				
	US17				
	US18				
	US19				
	US20				

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM/YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				
	FP1					
	FP2					
	FP3					
	FP4					
	FP5					
	FP6					
	FP7					
	FP8					
	FP9					

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Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. 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 2 hours 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, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Application Number	11/979,852
				Filing Date	November 8, 2007
				Inventors	SILVER <i>et al.</i>
				Art Unit	2611
				Examiner Name	(to be assigned)
Sheet	1		1	Attorney Docket Number	1744.216000G

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	NPL1	International Search Report for PCT/US2007/023461, dated June 18, 2008, 10 pp.	
	NPL2		
	NPL3		
	NPL4		
	NPL5		
	NPL6		
	NPL7		
	NPL8		
	NPL9		
	NPL10		

849168_1.DOC

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. 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 2 hours 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, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Electronic Acknowledgement Receipt

EFS ID:	3643632
Application Number:	11979852
International Application Number:	
Confirmation Number:	3797
Title of Invention:	Switching power supply
First Named Inventor/Applicant Name:	Gregory S. Silver
Customer Number:	26111
Filer:	Michael Q. Lee/Maya Bennett
Filer Authorized By:	Michael Q. Lee
Attorney Docket Number:	1744.216000G
Receipt Date:	18-JUL-2008
Filing Date:	08-NOV-2007
Time Stamp:	17:40:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		1744216000GIDS.pdf	305563 2d5f0f3ba342229b99e484e638041639 3b0b3fe1	yes	8

Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Miscellaneous Incoming Letter			1	1	
Information Disclosure Statement Letter			2	6	
Information Disclosure Statement (IDS) Filed			7	8	
Warnings:					
Information:					
2	NPL Documents	1744216000GNPL1.pdf	561227	no	10
			7b919b2955de13a85211d664d24dccc d0f80b6d4		
Warnings:					
Information:					
Total Files Size (in bytes):			866790		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



Robert Greene Sterne
Jorge A. Goldstein
David K.S. Cornwell
Robert W. Esmond
Tracy-Gene G. Durkin
Michele A. Cimbala
Michael B. Ray
Robert E. Sokohl
Eric K. Steffe
Michael Q. Lee
John M. Covert
Robert C. Millionig
Donald J. Featherstone
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Michael V. Messinger
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Peter A. Jackman
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Randall K. Baldwin
Daniel J. Nevry
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Scott M. Woodhouse*
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Richard D. Collier III*
Keisha Hylton-Rodic
Bonnie Nannenga-Combs
Alyssa K. Sandrowitz*
Jonathan M. Strang*
Ishan P. Weerakoon*

Registered Patent Agents*
Karen R. Markowicz
Matthew J. Dowd
Peter A. Socarras
Danielle L. Letting

Steven C. Oppenheimer
Aaron S. Lukas
Gaurav Asthana
Stephanie L. Elmer
Robert E. Bakin
Salvador M. Bezos
Yasser Mourtada

Of Counsel
Edward J. Kessler
Kenneth C. Bass III
Marvin C. Guthrie
Christopher P. Wrist
David C. Isaacson

*Admitted only in Maryland
*Admitted only in Virginia
*Practice Limited to
Federal Agencies

July 18, 2008

WRITER'S DIRECT NUMBER:
(202) 772-8674
INTERNET ADDRESS:
MLBE@SKGF.COM

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Re: U.S. Utility Patent Application
Appl. No. 11/979,852; Filed: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.216000G

Sir:

Applicants submit the following documents for appropriate action by the U.S. Patent and Trademark Office:

1. Information Disclosure Statement (IDS);
2. One (1) sheet of IDS Form PTO/SB/08A listing seven (7) documents;
3. One (1) sheet of IDS Form PTO/SB/08B listing one (1) document; and
4. Copy of document NPL1.

The above-listed documents are filed electronically through EFS-Web.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Yasser M. Mourtada Reg. # 61,056

for Michael Q. Lee
Attorney for Applicants
Registration No. 35,239

MQL/Y-M:mlb
Enclosures
849569_1.DOC

Sterne, Kessler, Goldstein & Fox P.L.L.C. : 1100 New York Avenue, NW : Washington, DC 20005 : 202.371.2600 f 202.371.2540 : www.skgf.com



APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/979,852	11/08/2007	Gregory S. Silver	1744.216000G

CONFIRMATION NO. 3797

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC20005

Title: Switching power supply

Publication No. US-2008-0122543-A1

Publication Date: 05/29/2008

NOTICE OF PUBLICATION OF APPLICATION

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

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Pre-Grant Publication Division, 703-605-4283



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
11/979,852	11/08/2007	2611	1560	1744.216000G	28	2

CONFIRMATION NO. 3797

UPDATED FILING RECEIPT

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005



Date Mailed: 02/25/2008

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

Applicant(s)

Gregory S. Silver, St. Augustine, FL;
David F. Sorrells, Middleburg, FL;
Gregory S. Rawlins, Heathrow, FL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/857,777 11/09/2006

Foreign Applications

If Required, Foreign Filing License Granted: 12/03/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/979,852**

Projected Publication Date: 05/29/2008

Non-Publication Request: No

Early Publication Request: No

Title

Switching power supply

Preliminary Class

375

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

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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NOT GRANTED

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 **Sterne Kessler
Goldstein Fox**
ATTORNEYS AT LAW



Robert Greene Sterne
Jorge A. Goldstein
David K.S. Cornwell
Robert W. Esmond
Tracy-Gene G. Durkin
Elizabeth A. Cimbal
Michael B. Ray
Robert E. Sokohl
Eric K. Steffe
Michael Q. Lee
John M. Covert
Robert C. Millonig
Donald J. Featherstone
Timothy J. Shea, Jr.
Michael V. Messinger
Judith U. Kim
Jeffrey T. Helvey
Eldora L. Ellison

Donald R. Banowitz
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Vincent L. Capuano
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Cynthia M. Bouchez
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Gaurav Asthana
Robert E. Bakin
Salvador M. Bezos

Of Counsel
Edward J. Kessler
Kenneth C. Bass III
Marvin C. Guthrie
Christopher P. Wrist

*Admitted only in Maryland
*Admitted only in Virginia
*Practice Limited to
Federal Agencies

February 4, 2008

WRITER'S DIRECT NUMBER:
(202) 772-8674
INTERNET ADDRESS:
MLEE@SKGF.COM

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Mail Stop Missing Parts

Re: U.S. Utility Patent Application
Appl. No. 11/979,852; Filed: November 8, 2007
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.216000G

Sir:

In reply to the "Notice to File Missing Parts of Application--Filing Date Granted," dated December 6, 2007, Applicants submit the following documents for appropriate action by the U.S. Patent and Trademark Office:

1. Copy of the Notice to File Missing Parts of Nonprovisional Application;
2. Fee Transmittal Form;
3. Credit Card Payment Form authorized in the amount of \$1,560.00 to cover: \$1,030.00 application filing fee (including basic, search and examination fees); \$400.00 excess total claims fee; and \$130.00 surcharge;
4. Declaration for Patent Application; and
5. One (1) return postcard.

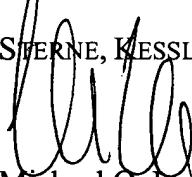
It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Commissioner for Patents
February 4, 2008
Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Michael Q. Lee
Attorney for Applicants
Registration No. 35,239

MQL/Y-M/mlb
Enclosures
777603_1.DOC



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/979,852	11/08/2007	Gregory S. Silver	1744.216000G

CONFIRMATION NO. 3797

FORMALITIES LETTER

26111

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005



Date Mailed: 12/06/2007

02/05/2008 JADDO: 00000036 11979852

01 FC:1011	310.00 JP
02 FC:1111	510.00 CP
03 FC:1311	210.00 CP
04 FC:1311	420.00 CP
05 FC:1351	130.00 CP

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.

Applicant must submit \$310 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).

- The oath or declaration is missing.

A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of \$400 as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of \$130 for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is \$1560 for a non-small entity

- \$310 Statutory basic filing fee.
- \$130 Surcharge.
- The application search fee has not been paid. Applicant must submit \$510 to complete the search fee.

- The application examination fee has not been paid. Applicant must submit **\$210** to complete the examination fee for a non-small entity.
- Total additional claim fee(s) for this application is **\$400**
 - **\$400** for **8** total claims over 20.

Replies should be mailed to:

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<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/dalyon/

Office of Initial Patent Examination (571) 272-4000 or 1-800-PTO-9199



PTO/SB/17 (10-07)

Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

Effective on 12/08/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818). FEE TRANSMITTAL For FY 2008		Complete if Known	
☒ Applicant claims small entity status. See 37 CFR 1.27		Application Number	11/979,852
TOTAL AMOUNT OF PAYMENT (\$)		Filing Date	November 8, 2007
1,560.00		First Named Inventor	Gregory S. SILVER
		Examiner Name	(to be assigned)
		Art Unit	2611
		Attorney Docket No.	1744.216000G

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 19-0036 Deposit Account Name: Sterne, Kessler, Goldstein & Fox P.L.L.C.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	310	155	510	255	210	105	1030.00
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims 28 - 20 or HP = 8 x 50.00 = 400.00

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims 2 - 3 or HP = 0 x 210.00 = 0.00

HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
<u>28</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): Late filing surcharge 130.00

SUBMITTED BY		
Signature		Registration No. (Attorney/Agent) <u>35,239</u>
Name (Print/Type)	<u>Michael O. Lee</u>	Telephone <u>(202) 371-2600</u>
		Date <u>2/4/08</u>

This collection of information is required by 37 CFR 1.136. 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 30 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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



Atty. Docket No: 1744.216000G

Declaration for Patent Application

As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the subject matter that is claimed and for which a patent is sought on the invention entitled **Switching Power Supply**, the specification of which is attached hereto unless the following box is checked:

☒ was filed on November 8, 2007;
as United States Application Number 11/979,852; and
was amended on _____ (if applicable).

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

I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

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

Prior Foreign Applications(s):

Priority
Claimed

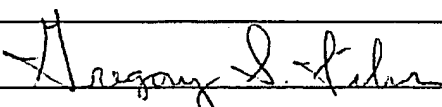
☐ Yes ☐ No

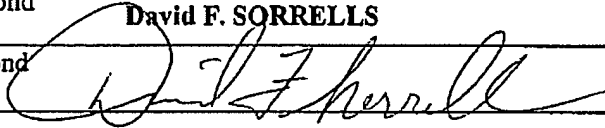
(Application No.) (Country) (Day/Month/Year
Filed)

Send Correspondence to: Customer No. 26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 New York Avenue, N.W.
Washington, D.C. 20005-3934

Direct Telephone Calls to: (202) 371-2600

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 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first Inventor:	Gregory S. SILVER	
Signature of first Inventor:		Date: 12-20-07
Residence:	St. Augustine, FL	
Citizenship:	USA <i>D.H.</i>	
Mailing Address:	64 Seaside Capers Road 2790 CR 13A South St. Augustine, FL 32095 Elkton, FL 32033	

Full name of second Inventor:	David F. SORRELLS	
Signature of second Inventor:		Date: 12-20-07
Residence:	Middleburg, FL	
Citizenship:	USA	
Mailing Address:	3129 Rideout Lane Middleburg, FL 32068	

Full name of third Inventor:	Gregory S. RAWLINS	
Signature of third Inventor:		Date:
Residence:	Heathrow, FL	
Citizenship:	USA	
Mailing Address:	155 Harston Court Heathrow, FL 32746-6973	

743759_1.DOC

Full name of first Inventor:	Gregory S. SILVER
Signature of first Inventor:	Date:
Residence:	St. Augustine, FL
Citizenship:	USA
Mailing Address:	64 Seaside Capers Road St. Augustine, FL 32095

Full name of second Inventor:	David F. SORRELLS
Signature of second Inventor:	Date:
Residence:	Middleburg, FL
Citizenship:	USA
Mailing Address:	3129 Rideout Lane Middleburg, FL 32068

Full name of third Inventor:	Gregory S. RAWLINS
Signature of third Inventor:	Date: 01/04/2008
Residence:	Heathrow, FL
Citizenship:	USA
Mailing Address:	~~455 Hurston Court~~ 1577 Cherry Lake Way Heathrow, FL 32746-6973

743759_1.DOC



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
11/979,852	11/08/2007	2611	0.00	1744.216000G	28	2

CONFIRMATION NO. 3797

26111

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

FILING RECEIPT



OC000000027056894

Date Mailed: 12/06/2007

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

Applicant(s)

Gregory S. Silver, St. Augustine, FL;
David F. Sorrells, Middleburg, FL;
Gregory S. Rawlins, Heathrow, FL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/857,777 11/09/2006

Foreign Applications

If Required, Foreign Filing License Granted: 12/03/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/979,852**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

Switching power supply

Preliminary Class

375

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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

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

NOT GRANTED

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



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/979,852	11/08/2007	Gregory S. Silver	1744.216000G

CONFIRMATION NO. 3797

FORMALITIES LETTER



OC000000027056895

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

Date Mailed: 12/06/2007

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

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Applicant must submit \$310 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).
- The oath or declaration is missing.
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- Additional claim fees of **\$400** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
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- **\$310** Statutory basic filing fee.
- **\$130** Surcharge.
- The application search fee has not been paid. Applicant must submit **\$510** to complete the search fee.

- The application examination fee has not been paid. Applicant must submit **\$210** to complete the examination fee for a non-small entity.
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 - **\$400** for **8** total claims over 20.

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<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

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If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/dalyon/

Office of Initial Patent Examination (571) 272-4000 or 1-800-PTO-9199

 **Sterne Kessler
Goldstein Fox**
ATTORNEYS AT LAW

05909 U.S. PTO



Robert Greene Sterne
Jorge A. Goldstein
David K.S. Cornwell
Robert W. Esmond
Tracy-Gene G. Durkin
Michele A. Cimbala
Michael B. Ray
Robert E. Sokohl
Eric K. Steffe
Michael Q. Lee
John M. Covert
Robert C. Millonig
Donald J. Featherstone
Timothy J. Shea, Jr.
Michael V. Messinger
Judith U. Kim
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Eldora L. Ellison

Donald R. Banowit
Peter A. Jackman
Brian J. Del Buono
Mark Fox Evens
Vincent L. Capuano
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Marvin C. Guthrie
Christopher P. Wrist

*Admitted only in Maryland
*Admitted only in Virginia
*Practice Limited to
Federal Agencies

November 8, 2007

WRITER'S DIRECT NUMBER:
(202) 772-8674
INTERNET ADDRESS:
MLEE@SKGF.COM

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Re: U.S. Non-Provisional Utility Patent Application under 37 C.F.R. § 1.53(b)
Appl. No. (to be assigned); Filed: (herewith)
For: **Switching Power Supply**
Inventors: SILVER *et al.*
Our Ref: 1744.216000G

Sir:

The following documents are transmitted herewith for appropriate action by the U.S. Patent and Trademark Office:

1. Utility Patent Application Transmittal Form (PTO/SB/05);
2. Authorization to Treat a Reply as Incorporating an Extension of Time under 37 C.F.R. § 1.136(a)(3);
3. U.S. Utility Patent Application entitled:

Switching Power Supply

and naming as inventors:

Gregory S. SILVER, David F. SORRELLS, and Gregory S. RAWLINS

the application consisting of:

- a. an Application Data Sheet;
- b. a specification containing:
 - i. 18 pages of description prior to the claims;
 - ii. 4 page of claims (28 claims); and
 - iii. a one (1) page abstract; and

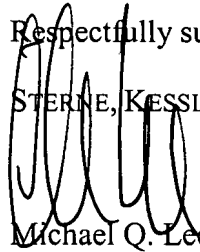
The PTO did not receive the following listed item(s) *see transmittal*

- c. 19 sheets of drawings (Figures 1-8, 9A-9E, 10A-10E, and 11); and
- 4. Two (2) return postcards.

It is respectfully requested that, of the two attached postcards, one be stamped with the filing date of these documents and returned to our courier, and the other, prepaid postcard, be stamped with the filing date and unofficial application number and returned as soon as possible.

This patent application is being submitted under 37 C.F.R. § 1.53(b) without Declaration and without filing fee.

Respectfully submitted,
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.


Michael Q. Lee
Attorney for Applicants
Registration No. 35,239

MQL/Y-M/mlb
Enclosures
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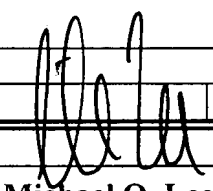
UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	1744.216000G
	First Inventor	Gregory S. SILVER
	Title	Switching Power Supply
	Express Mail Label No.	n/a

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
1. ☒ Fee Transmittal Form (e.g., PTO/SB/17) <i>(Submit an original and a duplicate for fee processing)</i> 2. ☐ Applicant claims small entity status. <i>See 37 CFR 1.27.</i> 3. ☒ Specification [Total Pages <u>23</u>] <i>Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP 608.01(a))</i> 4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>19</u>] 5. Oath or Declaration [Total Sheets _____] a. ☐ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) <i>(for continuation/divisional with Box 18 completed)</i> i. ☐ DELETION OF INVENTOR(S) <i>Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</i> 6. ☒ Application Data Sheet. See 37 CFR 1.76 7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (<i>Appendix</i>) ☐ Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, items a. – c. are required)</i> a. Computer Readable Form (CRF) i. ☐ Computer Readable Form (CRF) ii. ☐ Transfer Request (37 CFR 1.821(e)) b. Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 9. ☐ Assignment Papers (cover sheet & document(s)) Name of Assignee _____ 10. ☐ 37 CFR 3.73(b) Statement ☐ Power of Attorney <i>(when there is an assignee)</i> 11. ☐ English Translation Document <i>(if applicable)</i> 12. ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of foreign patent documents, publications, & other information 13. ☐ Preliminary Amendment 14. ☒ Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i> 15. ☐ Certified Copy of Priority Document(s) <i>(if foreign priority is claimed)</i> 16. ☐ Nonpublication Request under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. ☒ Other: Authorization under 37 CFR 1.136(a)(3)

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Prior application information: Examiner _____ Art Unit: _____

19. CORRESPONDENCE ADDRESS					
☒ The address associated with Customer Number:		26111		OR ☐ Correspondence address below	
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Signature				Date	
				11/8/07	
Name (Print/Type)				Registration No. (Attorney/Agent)	
Michael Q. Lee				35,239	

This collection of information is required by 37 CFR 1.53(b). 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 1.11 and 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SILVER *et al.*

Appl. No.: (to be assigned)

Filed: (herewith)

For: **Switching Power Supply**

Confirmation No.: (to be assigned)

Art Unit: (to be assigned)

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Atty. Docket: 1744.216000G

**Authorization to Treat a Reply as Incorporating an
Extension of Time under 37 C.F.R. § 1.136(a)(3)**

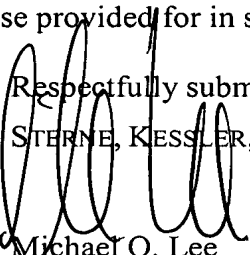
Commissioner for Patents
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Sir:

The U.S. Patent and Trademark Office is hereby authorized to treat any concurrent or future reply that requires a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. The U.S. Patent and Trademark Office is hereby authorized to charge all required extension of time fees to our Deposit Account No. 19-0036, if such fees are not otherwise provided for in such reply.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.


Michael Q. Lee

Attorney for Applicants
Registration No. 35,239

Date: 11/8/07
1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600
744325_1.DOC

APPLICATION DATA SHEET

Electronic Version v14
Stylesheet Version v14.1

Applicant Information:

Inventor 1:

Applicant Authority Type:	Inventor
Citizenship:	US
Given Name:	Gregory
Middle Name:	S.
Family Name:	SILVER
City of Residence:	St. Augustine
State of Residence:	FL
Country of Residence:	US
Address-1 of Mailing Address:	64 Seaside Capers Road
Address-2 of Mailing Address:	
City of Mailing Address:	St. Augustine
State of Mailing Address:	FL
Postal Code of Mailing Address:	32095
Country of Mailing Address:	US
Phone:	
Fax:	
E-mail:	

Inventor 2:

Applicant Authority Type:	Inventor
Citizenship:	US
Given Name:	David
Middle Name:	F.
Family Name:	SORRELLS
City of Residence:	Middleburg
State of Residence:	FL
Country of Residence:	US
Address-1 of Mailing Address:	3129 Rideout Lane
Address-2 of Mailing Address:	
City of Mailing Address:	Middleburg

State of Mailing Address: FL
Postal Code of Mailing Address: 32068
Country of Mailing Address: US
Phone:
Fax:
E-mail:

Inventor 3:

Applicant Authority Type: Inventor
Citizenship: US
Given Name: Gregory
Middle Name: S.
Family Name: RAWLINS
City of Residence: Heathrow
State of Residence: FL
Country of Residence: US
Address-1 of Mailing Address: 155 Harston Court
Address-2 of Mailing Address:
City of Mailing Address: Heathrow
State of Mailing Address: FL
Postal Code of Mailing Address: 32746-6973
Country of Mailing Address: US
Phone:
Fax:
E-mail:

Correspondence Information:

Customer Number: 26111 *26111*

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as our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Domestic Priority Information:

This application is a Non-Provisional of US application number 60/857,777, filed 2006-11-09.

Foreign Priority Information:

Assignee Information:

Assignee 1:

Organization Name:

Address-1 of Mailing Address:

Address-2 of Mailing Address:

City of Mailing Address:

State of Mailing Address:

Postal Code of Mailing Address:

Country of Mailing Address:

Phone:

Fax:

E-mail:

SWITCHING POWER SUPPLY

Inventors: Gregory S. Silver
David F. Sorrells
Gregory S. Rawlins

CROSS-REFERENCE TO RELATED APPLICATIONS

- [0001] The present application claims the benefit of U.S. Provisional Patent Application No. 60/857,777, filed November 9, 2006 (Att. Docket No. 1744.2160006), which is incorporated herein by reference in its entirety.
- [0002] The present application is related to U.S. Patent Application No. 11/256,172, filed October 24, 2005, now U.S. Patent 7,184,723 (Att. Docket No. 1744.1900006) and U.S. Patent Application No. 11/508,989, filed August 24, 2006 (Att. Docket No. 1744.2160001), both of which are incorporated herein by reference in their entireties.

BACKGROUND OF THE INVENTION

Field of the Invention

- [0003] The present invention relates generally to modulation and power amplification and related network and system control functions. More particularly, the invention relates to methods and systems for enhancing system parameters including efficiency in power amplification systems.

Background Art

- [0004] The efficiency of a power supply directly affects the efficiency of the power amplification system using the power supply. Further, in the case of mobile or portable battery powered wireless devices, the voltage and current requirements of the radio frequency (RF) transmitter used in the devices are largely determined by the power amplifier technology and system requirements.

[0005] As such, the power supply efficiency not only affects the efficiency of the power modulation and amplification system but also the efficiency of the mobile device using the power amplification system.

[0006] There is a need therefore for power supply architectures, design techniques, and operation modes that affect and/or optimize the overall system efficiency of the modulation and power amplification system.

BRIEF DESCRIPTION OF THE INVENTION

[0007] The present invention relates to systems and methods of RF power transmission, modulation, and amplification. Systems and methods of RF power transmission, modulation, and amplification also referred to herein as Vector Power Amplification (VPA) are described in related U.S. Patent Application No. 11/256,172, filed October 24, 2005, now U.S. Patent 7,184,723 and U.S. Patent Application No. 11/508,989, filed August 24, 2006, both of which are incorporated herein by reference in their entireties. It is noted that the invention is not limited to these VPA examples but can be applied to other transmitter functions and circuitry such as modulators, amplifiers, filters, and control circuitry.

[0008] The present invention provides methods and systems for enhancing system efficiency in a power amplification, modulation, and transmission system.

[0009] According to embodiments of the present invention, the overall system efficiency can be affected and/or optimized according to, but not limited to, the average or most probable output power levels, maximum power output level, battery voltage and/or changes in battery voltage, amplifier and/or modulator voltage and current requirements, power control requirements, adjacent channel power requirements (ACPR), adjacent channel leakage requirements (ACLR), standing wave ratio (SWR) requirements, in-band noise performance requirements, and out-of-band noise performance requirements such as is required by GSM and other standards based cell phone signals. In mobile or portable battery powered devices, this results in extended battery life, smaller

battery size, and increased and/or optimized output power for various power output levels, connectivity range, number of network nodes, and reliability and longevity.

[0010] Methods according to embodiments of the present invention include determining output power characteristics of a selected modulation scheme to be employed in data transmission, determining a probable (in certain embodiments, a most probable) output power point of operation for the selected modulation scheme based on the output power characteristics, and controlling the output stage power supply of the system to operate at substantially optimal efficiency at the most probable output power point of operation. In an embodiment, the output power characteristics include the probability distribution function of output power using the selected modulation scheme. In another embodiment, the output power characteristics are determined according to network statistics.

[0011] Provided methods for enhancing system efficiency can be used with traditional power amplifiers, vector power amplifiers, and multiple-input-single-output (MISO) power amplifiers (such as, but not limited to, the VPA examples described in the patent and patent application cited above). Further, the methods can be applied with various modulation schemes including, but not limited to, GSM, W-CDMA, CDMA 2000, EvDO, EDGE, HSUPA, and OFDM.

[0012] Systems implementing the above described methods include a mechanism to bypass the power supply circuitry at a pre-determined threshold, further increasing the system efficiency. In an implementation, a bypass switch control circuitry is used together with the power supply circuitry, to cause the bypass of the power supply circuitry using a bypass switch when the pre-determined threshold is exceeded. In an embodiment, the threshold is defined in terms of output power, and the bypass switch is engaged or disengaged when the output power exceeds or falls below the threshold. In another embodiment, the power supply is bypassed when the noise power on or near the output frequency (frequency of the output signal) exceeds a threshold.

[0013] In an embodiment, the bypass switch threshold can be changed in real time by wirelessly downloading information to the system. This wireless

information can be sent from a wireless network or from another device. In an embodiment, the bypass switch threshold is modified based on battery voltage. In another embodiment, the bypass switch threshold is modified based on battery life requirements. In a further embodiment, the bypass switch threshold is modified based on output power requirements and/or on power supply current output requirements.

[0014] Additional features and advantages of the invention will be set forth in the description that follows. Yet further features and advantages will be apparent to a person skilled in the art based on the description set forth herein or may be learned by practice of the invention. The advantages of the invention will be realized and attained by the structure and methods particularly pointed out in the written description and claims hereof as well as the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Embodiments of the present invention will be described with reference to the accompanying drawings, wherein generally like reference numbers indicate identical or functionally similar elements. Also, generally, the leftmost digit(s) of the reference numbers identify the drawings in which the associated elements are first introduced.

[0016] FIG. 1 illustrates exemplary plots of efficiency versus output current of a typical switching power supply for two exemplary values of output power.

[0017] FIG. 2 illustrates an example probability density function (PDF) of a handset output power.

[0018] FIG. 3 illustrates exemplary plots of power supply output voltage and power supply output current versus output power of an example multiple-input-single-output (MISO) amplifier.

[0019] FIG. 4 illustrates an example step down switching power supply having a bypass switch architecture.

[0020] FIG. 5 illustrates another example step down switching power supply having a bypass switch architecture.

- [0021] FIG. 6 illustrates example efficiency enhancement due to the use of a bypass switch architecture in a switching power supply.
- [0022] FIG. 7 illustrates examples of coupling a switching power supply to traditional amplifier designs.
- [0023] FIG. 8 illustrates examples of coupling a switching power supply to multiple-input-single-output (MISO) amplifier designs.
- [0024] FIGS. 9A-9E illustrate the integration of a switching power supply in a D2P vector power amplification system according to an embodiment of the invention.
- [0025] FIGS. 10A-10E illustrate the integration of a switching power supply in another D2P vector power amplification system according to an embodiment of the invention.
- [0026] FIG. 11 is a process flowchart of a method for enhancing system efficiency in a power amplification system according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Overview

- [0027] Methods and systems for enhancing system efficiency in a power amplification, modulation, and transmission system are provided herein.
- [0028] According to embodiments of the present invention, the overall system efficiency can be affected and/or optimized according to, but not limited to, the average or most probable output power levels, maximum power output level, battery voltage and/or changes in battery voltage, amplifier and/or modulator voltage and current requirements, power control requirements, adjacent channel power requirements (ACPR), adjacent channel leakage requirements (ACLR), standing wave ratio (SWR) requirements, in-band noise performance requirements, and out-of-band noise performance requirements such as is required by GSM and other standards based cell phone signals. In mobile or portable battery powered devices, this results in extended battery life, smaller battery size, and increased and/or optimized output power for various power

output levels, connectivity range, number of network nodes, and reliability and longevity.

[0029] According to embodiments of the present invention, the efficiency of all types of amplifiers, including, but not limited to, MISO amplifiers can be improved over various output power levels by designing a variable voltage switching power supply based on system criteria, such as, but not limited to, network statistics and/or typical operating conditions.

[0030] According to further embodiments, an optional bypass switch architecture can be used as part of the power supply design to further enhance the system efficiency, reduce the system noise floor, and increase the available output current of the power supply. These advantages reduce the amount of circuitry required to support multiple modulation methods and output powers.

[0031] Embodiments for enhancing system efficiency can be used with traditional power amplifiers, vector power amplifiers, and multiple-input-single-output (MISO) power amplifiers. Further, embodiments can be applied with various modulation schemes including, but not limited to, GSM, W-CDMA, CDMA 2000, EvDO, EDGE, HSUPA, and OFDM.

[0032] Systems implementing some of the above described embodiments include a mechanism to bypass the power supply circuitry at a pre-determined threshold, further increasing the system efficiency. In an implementation, a bypass switch control circuitry is used together with the power supply circuitry, to cause the bypass of the power supply circuitry when the pre-determined threshold is exceeded. In an embodiment, the threshold is defined in terms of output power, and the bypass switch is engaged or disengaged when the output power exceeds or falls below the threshold. In another embodiment, the power supply is bypassed when the noise power on or near the output frequency (frequency of the output signal) exceeds a threshold.

Effect of Power Supply Efficiency on System Efficiency

[0033] FIG. 1 illustrates exemplary plots 102 and 104 of efficiency versus output current of a typical switching power supply for two exemplary values of output power.

- [0034] As illustrated in plots 102 and 104, the power supply is most efficient when the output current is between 100 and 200 milliamps (ma) depending on the input and output voltages. Also, when plots 102 and 104 are extended beyond 650 mA for the output current, the power supply efficiency would continue to decrease as the output current increases.
- [0035] The power supply efficiency directly affects the efficiency of the entire power amplification system using the power supply. Further, in the case of mobile or portable battery powered wireless devices including, but not limited to, cellular phones, wireless LAN devices, and WiMax devices and systems, voltage and current requirements of the radio frequency (RF) transmitter are largely determined by the power amplifier technology and system requirements. As such, the efficiency of the power supply of a power amplification system significantly affects the efficiency of the mobile device using said power amplification system.
- [0036] To highlight this problem, consider, for example, a scenario where the battery voltage (power supply input voltage, V_{IN}) is 3.6 V and the output voltage (power supply output voltage, V_{OUT}) is 3.16 V, and where the power supply drives a power amplifier that is 50% efficient generating a +30 dBm output power. Accordingly, the power supply current will be approximately 633 mA. From plot 102 of FIG. 1, this results in a power supply efficiency of approximately 94%, which is 4% less than the optimum 98% achievable with a power supply current of approximately 190 mA.
- [0037] At lower output voltages (V_{OUT}), as illustrated in plot 104 for example, the problem becomes more pronounced, and the power supply efficiency approaches approximately 80% at 633 mA, which is 18% less efficient than when the power supply is operating in its optimum voltage and current range.
- [0038] The effect on system efficiency is significant. For example, when the power amplifier is operating at 50% efficiency and the power supply is operating at 94% efficiency, the system efficiency is $0.5 \times 0.94 = 0.47$ or 47%. Similarly, when the power amplifier is operating at 50% efficiency and the power supply is operating at 80% efficiency, the system efficiency is $0.5 \times 0.8 = 0.4$ or 40%.

Power Supply Design Optimization for Enhanced System Efficiency

- [0039] In this section, power supply design embodiments to enhance system efficiency are provided. For example, switching power supplies can be designed to operate in pre-determined output voltage and current ranges that result in increased efficiency of the power supply and consequently in increased system efficiency. These embodiments can be used to control both the efficiency and the output power level of traditional power amplifiers (PAs) and/or multiple-input-single-output (MISO) amplifiers.
- [0040] One set of criteria that can be used to design both the power supply and the power amplifier for maximized system efficiency include the network characteristics and/or statistics. An exemplary network characteristic of a code division multiple access (CDMA) network is shown in FIG. 2, which illustrates a probability density function (PDF) 200 of a handset output power used on a reverse link (handset to base station) and measured at the power amplifier output of the handset.
- [0041] PDF 200 is shown according to a log normal scale in FIG. 2 and provides the time probability that the handset spends transmitting using a given output power level, according to the transmitted CDMA waveform.
- [0042] Based on PDF 200, it would be sufficient to increase system efficiency to design a power supply and/or amplifier system that maintains or increases the system efficiency at power levels below +30dBm. Indeed, mathematical analysis shows that the mean or expected value of PDF 200 is approximately +17 dBm or 50 milliWatts (mW). Further, since the probability of transmission at +17 dBm is higher than the probability of transmission at +30 dBm, system efficiency increases at +17 dBm will have a greater overall effect on extended battery life and/or battery size than system efficiency increases at +30 dBm.
- [0043] The above described CDMA design criteria can be applied in the case of a multiple-input-single-output (MISO) amplifier, examples of which are described in the patent and patent application cited above. FIG. 3 illustrates exemplary plots 302 and 304 of power supply output voltage and power supply

output current, respectively, versus output power of an example MISO amplifier.

[0044] Plots 302 and 304 illustrate the power supply output voltage and output current that are required by an example MISO amplifier to achieve a CDMA power control range. For ease of illustration, the output power range in plots 302 and 304 is limited to 0 dBm to +30 dBm instead of -40 dBm to +30 dBm, since the most probable output power occurs at +17 dBm.

[0045] In an example MISO amplifier, the power supply output voltage is applied at the collector/drain of the MISO amplifier depending on the MISO amplifier configuration used. As illustrated in exemplary plot 302, the collector/drain voltage range of the MISO amplifier is +1.39V to +3.6V. Also, for an output power of +17 dBm, the collector/drain voltage of the MISO amplifier is approximately +1.39V.

[0046] Accordingly, to achieve the highest system efficiency possible using example CDMA PDF 200, the switching power supply should be designed to operate at its highest efficiency when its output voltage is approximately +1.39V and, correspondingly from exemplary plot 304, when its output current is approximately 100 mA.

[0047] Note that the switching power supply may be designed to vary its highest efficiency point of operation according to the selected data modulation and transmission scheme. As would be understood by a person skilled in the art, the output power characteristics of transmission schemes (e.g., CDMA, CDMA2000, GSM, etc.) differ from one scheme to another. Accordingly, the most probable output power point of operation also varies from one transmission scheme to another, and, consequently, so does the highest efficiency point of operation of the power supply.

[0048] Based on the above, a method for enhancing system efficiency in a power amplification system is provided and is illustrated in process flowchart 1100 of FIG. 11. The power amplification system can be a traditional power amplifier, a vector power amplifier, or a multiple-input-single-output (MISO) amplifier. Process 1100 includes steps 1102, 1104, and 1106.

- [0049] Process 1100 begins in step 1102, which includes determining output power characteristics of a selected modulation scheme to be employed in data transmission. In an embodiment, the output power characteristics include a probability distribution function of output power using the selected modulation scheme. In another embodiment, the output power characteristics are determined according to network statistics. The selected modulation scheme can be any one of GSM, W-CDMA, CDMA 2000, EvDO, EDGE, HSUPA, and OFDM.
- [0050] Step 1104 includes determining a probable (in certain embodiments, a most probable) output power point of operation for the selected modulation scheme based on the determined output power characteristics.
- [0051] Step 1106 includes controlling an output stage power supply within the power amplification system to operate at substantially optimal efficiency at the probable output power point of operation.

Power Supply Efficiency Optimization

- [0052] In addition to designing/controlling the power supply to operate optimally in terms of efficiency at the most probable output power, the overall power supply efficiency can be improved to increase system efficiency. As will be described in the exemplary embodiments below, the system efficiency can be further increased by bypassing the power supply when the required output voltage (or the output power) exceeds a pre-determined threshold. For example, referring to exemplary plot 302, an optional power supply bypass switch can be used to bypass the power supply when the power supply output voltage required by the MISO amplifier reaches 3.6V, which corresponds to an output power of +26 dBm or 400 mW. By bypassing the power supply, any loss in system efficiency due to the power supply efficiency can be eliminated.
- [0053] FIG. 4 illustrates an example step down (buck) switching power supply 400 having a bypass switch architecture.
- [0054] Power supply 400 receives an input voltage signal V_{IN} 418, an Output Stage Voltage Control signal 416, and a Threshold Voltage signal 414.

- [0055] Input voltage signal V_{IN} 418 is typically received from a battery and is set according to, among other requirements, the device using the power amplifier. In exemplary plots 102 and 104, for example, V_{IN} 418 takes values of 2.7V, 3.6V, 4.2V, and 5.5V.
- [0056] Output Stage Voltage Control signal 416 is received from a control module configured to control the power supply voltage provided to the output stage of the power amplifier. In example 400, Output Stage Voltage Control signal 416 controls an Aperture Generator and Control module 404 of power supply 400.
- [0057] Threshold Voltage 414 may also be received from the same control module as Output Stage Voltage Control signal 416. The function of Threshold Voltage 414 is to control a Bypass Switch Control module 402 of power supply 400.
- [0058] Threshold Voltage 414 may be fixed or programmable. Threshold Voltage 414 may vary depending on network statistics and/or network waveforms including, but not limited to, GSM, W-CDMA, CDMA2000, EvDO, EDGE, HSPA, OFDM, or others. In an embodiment, Threshold Voltage 414 can be changed in real time by wirelessly downloading information to the system. For example, Threshold Voltage 414 can be downloaded to the mobile device or portable unit using power supply 400 from a network provider. In another embodiment, Threshold Voltage 414 can be pre-programmed based on waveform efficiency requirements and/or modified or adjusted based on battery life requirements. In a further embodiment, Threshold Voltage 414 is modified based on output power requirements and/or on power supply current output requirements.
- [0059] Referring back to FIG. 4, in addition to modules 402 and 404, power supply 400 includes a Bypass Switch 406, an input switch 420, a switching transistor 408, and an output LC circuit comprised of an inductor L_{OUT} 410 and a capacitor C_{OUT} 412.
- [0060] Power supply 400 operates in two modes: normal mode and bypass mode.

- [0061] In normal mode, input voltage signal V_{IN} 418 is received at input switch 420, which is controlled by Aperture Generator and Control module 404.
- [0062] Aperture Generator and Control module 404 is configured to control input switch 420 to couple input voltage signal V_{IN} 418 to the collector/drain of switching transistor 408. As such, V_{IN} 418 provides a bias voltage for the collector/drain of switching transistor 408.
- [0063] Aperture Generator and Control module 404 is also configured to control the base/gate voltage of switching transistor 408, effectively controlling the point of operation and subsequently the gain of switching transistor 408. In an embodiment, Aperture Generator and Control module 404 uses Output Stage Voltage Control signal 416 to determine the required power supply output voltage and, accordingly, controls the base/gate voltage of switching transistor 408. In another embodiment, Aperture Generator and Control module 404 receives a feedback signal of the power supply output voltage V_{OUT} 422. Aperture Generator and Control module 404 may then adjust its control of switching transistor 408, if necessary.
- [0064] In example power supply 400, switching transistor 408 is illustrated as a single NMOS transistor. As would be understood by a person skilled in the art, embodiments according to the present invention are not limited by this configuration and may include, among other configurations, one or more NMOS, PMOS, NPN, and PNP transistors.
- [0065] At the output (collector/drain node) of switching transistor 408, inductor L_{OUT} 410 is an exemplary output reactance that meets the voltage and current output requirements of the supply. The reactance can be inductive or capacitive. C_{OUT} 412 acts to filter the AC components of the output of switching transistor 408. As such power supply output voltage V_{OUT} 422 is substantially a DC voltage.
- [0066] In Bypass mode, V_{IN} 418 is directly coupled to the power supply output node, which provides power supply output voltage V_{OUT} 422. Bypass mode operation is described below.
- [0067] Bypass Switch Control module 402 receives Threshold Voltage signal 414 and Output Stage Voltage Control signal 416. Threshold Voltage signal

414 determines at which value of the power supply output voltage power supply 400 switches to bypass mode. Output Stage Voltage Control signal 416 includes information about the target power supply output voltage and thus allows Bypass Switch Control module 402 to determine the value of the power supply output voltage.

[0068] Bypass Switch Control module 402 compares Threshold Voltage 414 and the value of the power supply output voltage to determine whether power supply 400 should switch to bypass mode. When the power supply output voltage exceeds Threshold Voltage 414, Bypass Switch Control module 402 controls Bypass Switch 406 to couple input voltage signal V_{IN} 418 to the power supply output node. At the same time, Bypass Switch Control module 402 controls Aperture Generator and Control module 404 to cause it to de-couple input voltage signal V_{IN} 418 from the collector/drain node of switching transistor 408 and to shut off switching transistor 408.

[0069] Accordingly, Bypass Switch Control module 402 bypasses the power supply when the output power exceeds a determined threshold, thereby increasing the efficiency of the power supply for output powers exceeding the determined threshold. In another embodiment, Bypass Switch Control module 402 bypasses the power supply when the noise power on or near the output frequency exceeds a threshold.

[0070] As would be understood by a person skilled in the art based on the teachings herein, several parameters can be affected and/or optimized using the power supply design of FIG. 4. For example, the operation dynamic range of the power supply is reduced through the bypass option, which increases the efficiency over the smaller power supply control range. Also, since the switching portion of the supply does not have to carry the maximum voltage and current required, the size and value of the switch (including the switching inductor or capacitor) can be reduced. Additionally, in-band and out-of-band noise can be reduced as switching components typically cause noise. This is especially important at higher power output levels because all cellular phone standards have a maximum "close in" (20 MHz offset) receive band noise floor requirement. Further, as the battery voltage changes during operation, the

higher output power levels can be maintained and controlled over a wider battery voltage range.

[0071] FIG. 5 illustrates another example step down switching power supply 500 having a bypass switch architecture.

[0072] Switching power supply 500 is similar in several respects to example power supply 400 of FIG. 4. Additionally, switching power supply 500 includes an Optional Hysteresis Control signal 502, which is received by Bypass Switch Control module 402, and an Optional Load Current Sensing Circuit 504.

[0073] Operation of Bypass Switch Control module 402 is as follows in example switching power supply 500. Bypass Switch Control module 402 receives Threshold Voltage signal 414, Output Stage Voltage Control signal 416, and Optional Hysteresis Control signal 502.

[0074] Bypass Switch Control module 402 compares the value of Output Stage Voltage Control signal 416 to the sum of Threshold Voltage signal 414 and Optional Hysteresis Control signal 502.

[0075] When Output Stage Voltage Control signal 416 exceeds the sum of Threshold Voltage signal 414 and Optional Hysteresis Control signal 502, Bypass Switch Control module 402 controls Aperture Generator and Control module to cause it to de-couple input voltage signal V_{IN} 418 from the collector/drain node of switching transistor 408 and to shut off switching transistor 408. At the same time, Bypass Switch Control module 406 controls Bypass Switch 406 to couple input voltage signal V_{IN} 418 to the power supply output node 506.

[0076] On the other hand, when Output Stage Voltage Control signal 416 falls below the sum of Threshold Voltage signal 414 and Optional Hysteresis Control signal 502, Bypass Switch Control module 402 controls Bypass Switch 406 to de-couple input voltage signal V_{IN} 418 from the power supply output node 506 and re-activates transistor 408 by coupling input voltage signal V_{IN} 418 thereto through input switch 420.

[0077] Optional Hysteresis Control signal 502 can be downloaded or otherwise provided to the mobile device or portable unit using power supply 500 from a

network provider. In another embodiment, Optional Hysteresis Control signal 502 can be pre-programmed based on waveform efficiency requirements and/or modified or adjusted based on changes in battery voltage and/or required output power.

[0078] Optional Load Current Sensing Circuit 504 is coupled at output node 422 of power supply 500. In an embodiment, Load Current Sensing Circuit 504 senses load current to determine any variations that may affect power supply output voltage V_{out} 506. Further, Optional Load Current Sensing Circuit 504 provides a feedback signal to Bypass Switch Control module 402. In an embodiment, the feedback signal includes information about sensed load current, which can be used by Bypass Switch Control module 402 to control the operation mode of switching power supply 500.

[0079] The power supply design techniques discussed above have been described with respect to step down switching power supplies. Embodiments of the present invention are not limited to these embodiments. As would be understood by a person skilled in the art based on the teachings herein, the power supply design techniques described herein can be applied to step down switching power supplies (buck), step up switching power supplies (boost), and step down and step up (buck-boost) power supplies.

[0080] FIG. 6 is an example graph 600 that illustrates efficiency enhancement due to the use of a bypass switch architecture in a switching power supply. In example 600, the switching power supply is optimized for a +17dBm output (1.39V output voltage and 100 mA output current).

[0081] Efficiency curve 602 represents the efficiency versus the output current of the switching power supply without a bypass switch. Efficiency curve 604 represents the efficiency versus the output current of the switching power supply with a bypass switch. Note that the two efficiency curves 602 and 604 overlap with each other over the output current range from 0 to approximately 0.4 A.

[0082] Without a bypass switch, as illustrated by efficiency curve 602, the switching power supply has its highest efficiency between 70 and 100 mA of

output current, which renders the highest system efficiency of the exemplary MISO amplifier in the example network statistics.

[0083] On the other hand, with a bypass switch architecture, as illustrated by efficiency curve 604, the power supply efficiency can be further increased when the output current exceeds 400 mA. This in turn increases the network system efficiency when the required output power is equal to or greater than 400 mW (+26dBm).

[0084] The optional bypass switch architecture can also be used to increase the maximum current range of the power supply design. For example, if the switching power supply circuitry (without the bypass switch) can supply a maximum of 650 mA but the bypass switch is designed to support up to 1500 mA, the power supply can as a result supply up to 1500 mA. The bypass switch has yet another advantage, which includes the suppression of switching noise or ripple presented to the amplifier when the bypass switch is engaged and the switching power supply is turned off. This results in a reduced system noise floor when the bypass switch is engaged.

[0085] In what follows, the positioning/integration of the switching power supply within a power amplifier design or a system using the power amplifier design is described.

[0086] FIG. 7 illustrates examples 702 and 704 of coupling a switching power supply to traditional amplifier designs. In example 702, the switching power supply, represented by voltage signal V_{out} , is coupled (optionally through a pull-up resistance) to the collector/emitter node of an NPN/PNP-based amplifier. Similarly, in example 704, the switching power supply, represented by voltage signal V_{out} , is coupled (optionally through a pull-up resistance) to the drain/source node of an NMOS/PMOS-based amplifier.

[0087] FIG. 8 illustrates similar examples 802 and 804 of coupling a switching power supply to multiple-input-single-output (MISO) amplifier designs. Example 802 illustrates the coupling of the switching power supply, represented by voltage signal V_{out} , to an exemplary two-input single output BJT-based (NPN/PNP/Hybrid) MISO amplifier. The switching power supply can be coupled (optionally through a pull-up resistance) to the common

collector/emitter node of the MISO transistors. Similarly, example 804 illustrates the coupling of the switching power supply, represented by voltage signal V_{out} , to an exemplary two-input single output FET-based (NMOS/PMOS/Hybrid) MISO amplifier. The switching power supply can be coupled (optionally through a pull-up resistance) to the common drain/source node of the MISO transistors.

[0088] The switching power supply (with optional bypass switch architecture) can be used to increase the system efficiency of the exemplary traditional and MISO amplifier designs described above. Further, the switching power supply (with optional bypass switch architecture) can be designed to operate with and optimize the system efficiency of any of the MISO amplifier architectures and schematics shown in related U.S. Patent Application No. 11/256,172 and 11/508,989.

[0089] FIGS. 9A-9E illustrate an example D2P Vector Power Amplification system 5900, which uses an embodiment of the switching power supply described herein to power its output stage. The output stage of system 5900 includes two MISO amplifiers MA1 5930 and MA2 5932. The switching power supply is integrated in system 5900 as Output Stage Power Supply module 5906, shown in FIG. 9B. The switching power supply receives an Output Stage Voltage Control signal 5765 and outputs two output stage supply voltage signals MA1 Output Stage VSupply 5911 and MA2 Output Stage VSupply 5913, which power MA1 5930 and MA2 5932, respectively. Further description of system 5900 can be found in related U.S. Patent Application No. 11/508,989, incorporated herein by reference in its entirety.

[0090] FIGS. 10A-10E illustrate another example D2P Vector Power Amplification system 6100, which uses an embodiment of the switching power supply described herein to power its output stage. The output stage of system 6100 includes five MISO amplifiers GMA2 6126, MA3 6128, MA4 6130, GMA0 6132, and MA1 6134. The switching power supply is integrated in system 6100 as Output Stage Power Supply module 5906, shown in FIG. 10B. The switching power supply receives an Output Stage Voltage Control signal 5765 and outputs five output stage supply voltage signals GMA0 Output Stage

VSupply 6113, MA1 Output Stage VSupply 6114, GMA2 Output Stage VSupply 6115, MA3 Output Stage VSupply 6116, and MA4 Output Stage VSupply 6117, which power MISO amplifiers GMA0 6132, MA1 6134, GMA2 6126, MA3 6128, and MA4 6130, respectively. Further description of system 5900 can be found in related U.S. Patent Application No. 11/508,989, incorporated herein by reference in its entirety.

[0091] Embodiments of the switching power supply and bypass switch design techniques described herein can be applied to any modulation and/or amplification circuitry or stage within a multi-stage amplification system, to enhance the system efficiency. For example, in addition to being applied to the output stage of MISO amplifiers MA1 5930 and MA2 5932, embodiments described herein can be applied to a Driver Stage and/or a Pre-Driver Stage within each of MISO amplifiers MA1 5930 and MA2 5932. As such, power supplies designed to power up these amplification stages (e.g., Driver Stage Power Supply 5904 in FIGS. 9B and 10B) can be configured to operate in optimum voltage and current ranges to provide increased system efficiency.

[0092] In other embodiments, the Driver Stage Power Supply and the Output Stage Power Supply can be combined into a single switching power supply design. The combined switching power supply may or may not employ a bypass switch architecture depending on the system design requirements.

Conclusion

[0093] While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.

WHAT IS CLAIMED IS:

1. A method for enhancing system efficiency in a power amplifier, comprising:
determining output power characteristics of a selected modulation scheme to be employed in data transmission;
determining a probable output power point of operation for said selected modulation scheme based on said output power characteristics; and
controlling an output stage power supply within the system to operate at improved efficiency at said probable output power point of operation.
2. The method of claim 1, wherein said probable output power point of operation is the most probable output power point of operation
3. The method of claim 1, wherein said output power characteristics comprise a probability distribution function of output power using said selected modulation scheme.
4. The method of claim 1, wherein said output power characteristics are determined according to network statistics.
5. The method of claim 1, wherein the power amplifier is a traditional power amplifier.
6. The method of claim 1, wherein the power amplifier is a vector power amplifier.
7. The method of claim 1, wherein the power amplifier is a multiple-input-single-output (MISO) power amplifier.
8. The method of claim 1, wherein the selected modulation scheme is any one of GSM, W-CDMA, CDMA 2000, EvDO, EDGE, HSUPA, and OFDM.

9. The method of claim 1, further comprising:
bypassing said output stage power supply when the output power of the power amplifier exceeds a determined bypass switch threshold, thereby increasing the efficiency of said output stage power supply for output powers exceeding said threshold.
10. The method of claim 1, further comprising bypassing said output stage power supply when the noise power on or near an output frequency of said power amplifier exceeds a threshold.
11. The method of claim 9, further comprising wirelessly providing information to the power amplifier to change said bypass switch threshold.
12. The method of claim 11, wherein the wirelessly provided information is sent from a wireless network
13. The method of claim 11, wherein the wirelessly provided information is sent from another device.
14. The method of claim 9, wherein the bypass switch threshold is modified based on battery voltage.
15. The method of claim 9, wherein the bypass switch threshold is modified based on battery life requirements.
16. The method of claim 9, wherein the bypass switch threshold is modified based on output power requirements.
17. The method of claim 9, wherein the bypass switch threshold is modified based on power supply current output requirements.
18. A power supply, comprising:

a transistor to receive, through an input switch, an input voltage, and comprising an output node;

an aperture generator and control module to receive an output voltage control signal, and to control said input switch; and

a bypass switch control module to receive said output voltage control signal and a threshold voltage, and to control a bypass switch;

wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output node, and causes said input switch to de-couple said input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage.

19. The power supply of claim 18, wherein said output voltage control signal is received from an amplification stage being powered by the power supply.

20. The power supply of claim 18, wherein said bypass switch control module controls said aperture generator and control module, in order to control said input switch.

21. The power supply of claim 18, wherein said aperture generator and control module controls an input node of said transistor, thereby controlling the point of operation and gain of said transistor.

22. The power supply of claim 18, wherein said aperture generator and control module controls said transistor according to said output voltage control signal.

23. The power supply of claim 18, wherein said aperture generator and control module receives a power supply output feedback signal and controls said transistor according to said feedback signal.

24. The power supply of claim 18, wherein said transistor comprises one or more of NMOS transistors, PMOS transistors, NPN transistors, and PNP transistors.

25. The power supply of claim 18, wherein said bypass switch control module compares said output voltage control signal and said threshold voltage.

26. The power supply of claim 18, wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output voltage node, and causes said input switch to de-couple said input voltage from said transistor, when noise power on or substantially near an output frequency exceeds a threshold.

27. The power supply of claim 18, wherein said bypass switch control module causes said bypass switch to couple said input voltage to said output voltage node, and causes said input switch to de-couple said input voltage from said transistor, when said output voltage control signal exceeds said threshold voltage by the value of a hysteresis control signal.

28. The power supply of claim 18, further comprising:
a load current sensing circuit, coupled to said output node of the power supply, to measure load current variations and to provide a feedback signal to said bypass switch control module.

SWITCHING POWER SUPPLY

ABSTRACT OF THE DISCLOSURE

Methods and systems for enhancing system efficiency in a power amplification, modulation, and transmission system are provided. Embodiments include determining output power characteristics of a selected modulation scheme to be employed in data transmission, determining a most probable output power point of operation for the selected modulation scheme based on the output power characteristics, and controlling the output stage power supply of the system to operate at substantially optimal efficiency at the most probable output power point of operation.

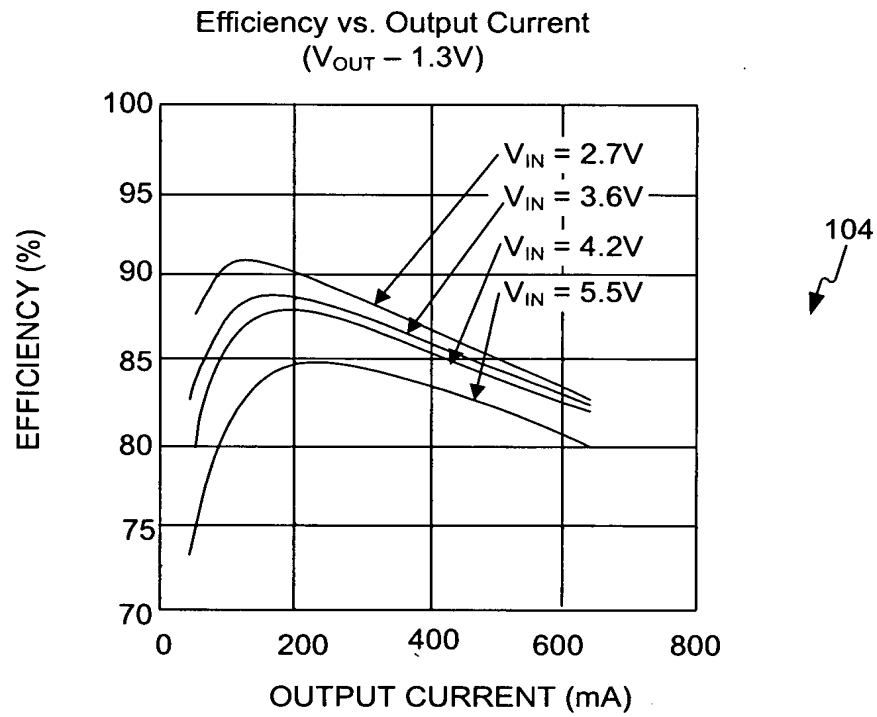
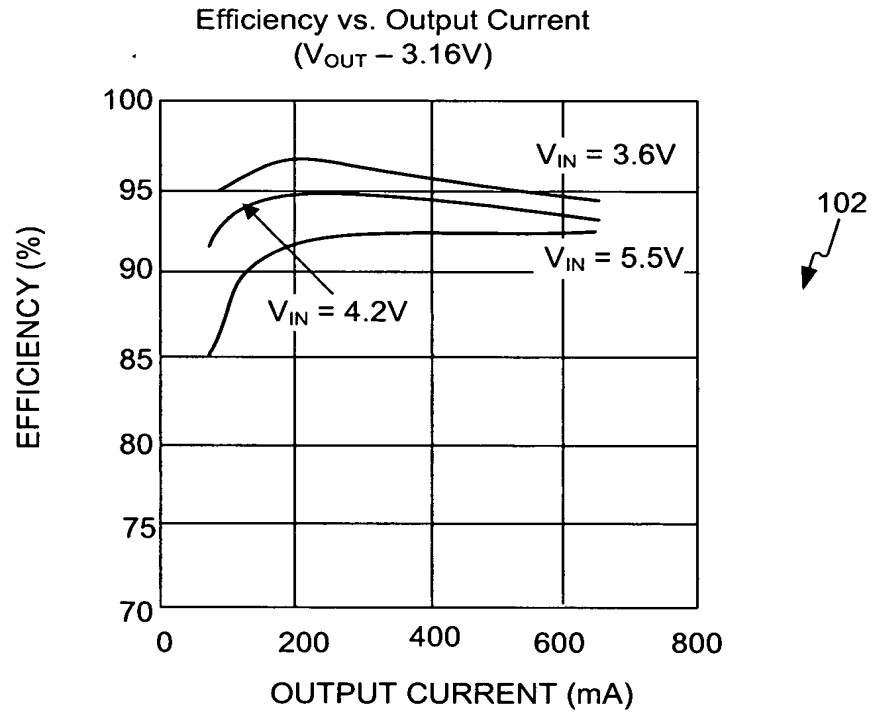
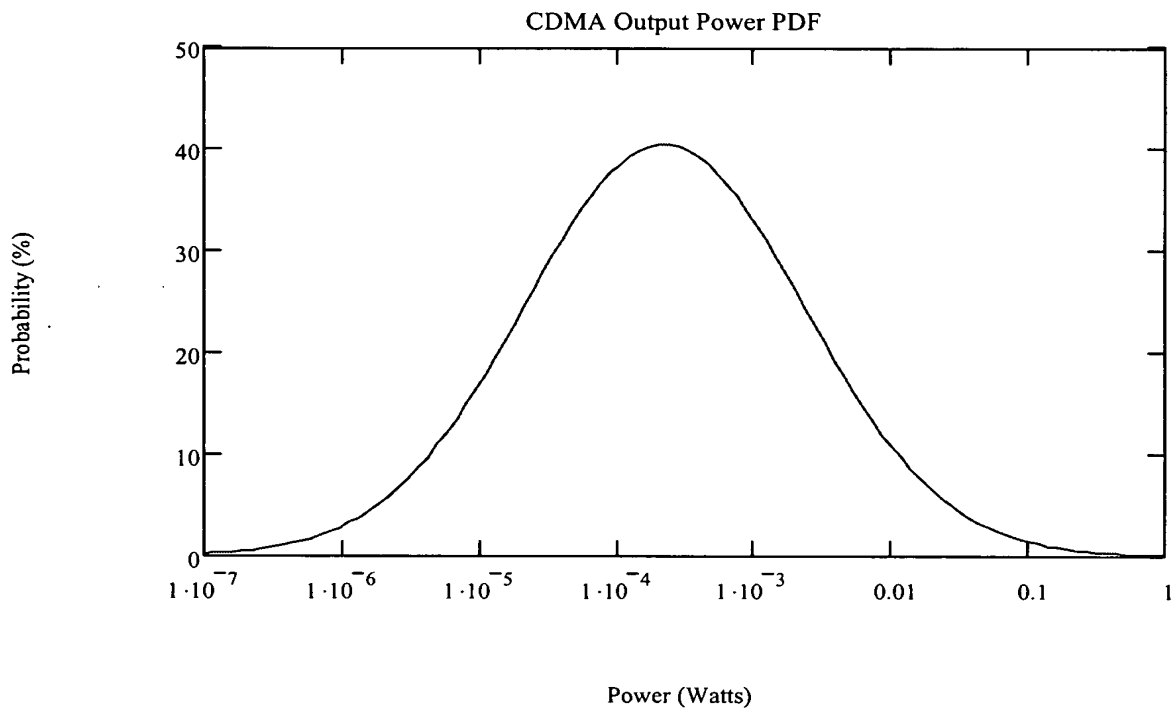


FIG. 1

**FIG. 2**

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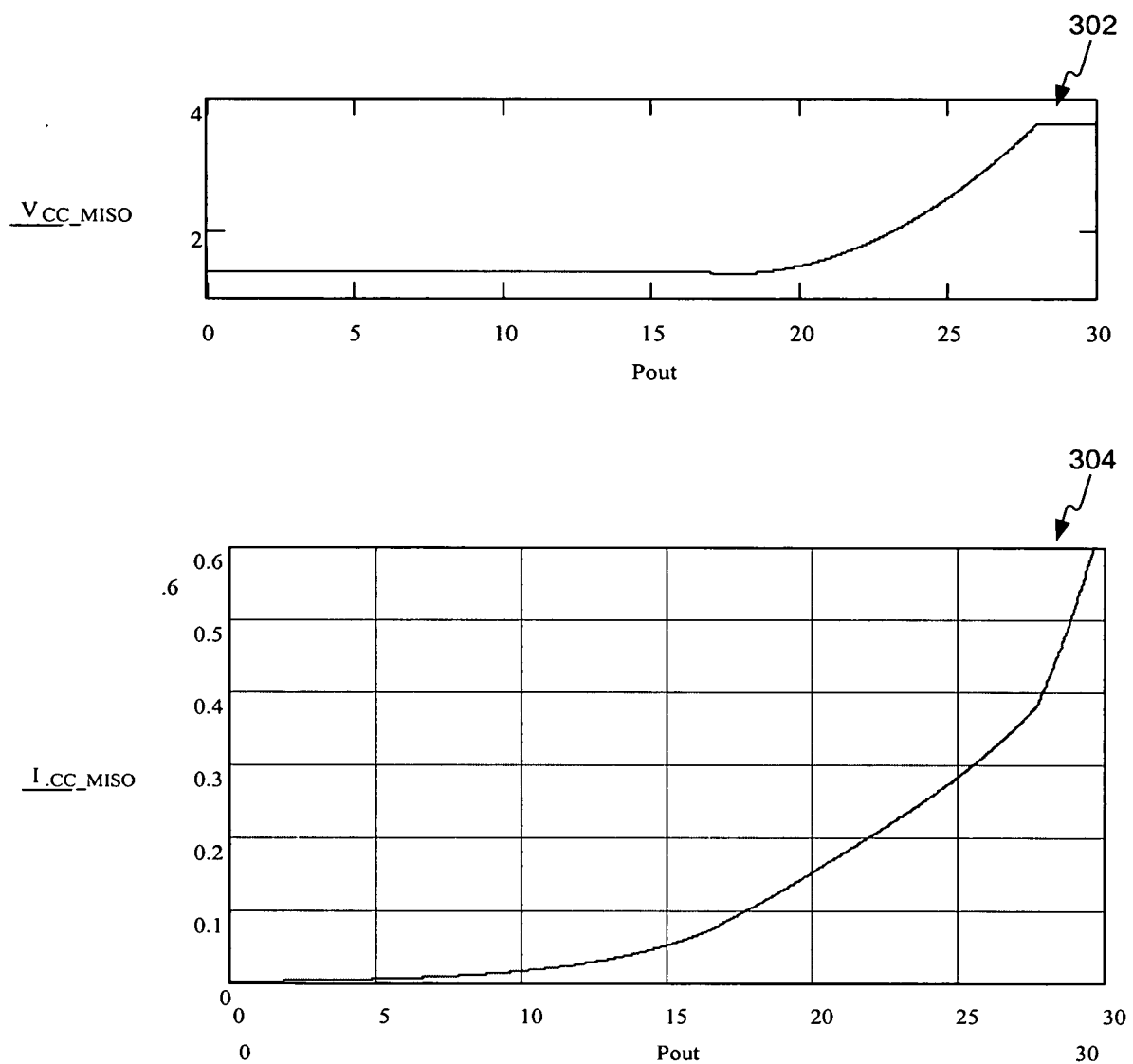


FIG. 3

0702-50.vsd/3

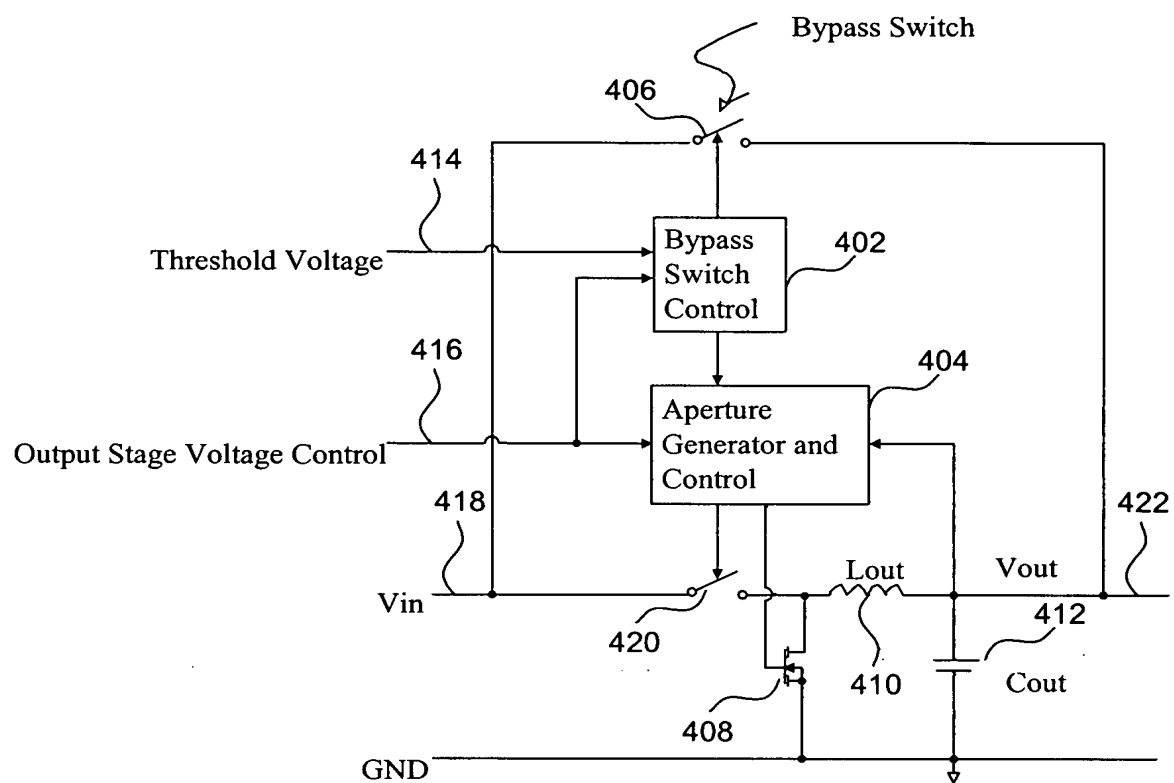


FIG. 4

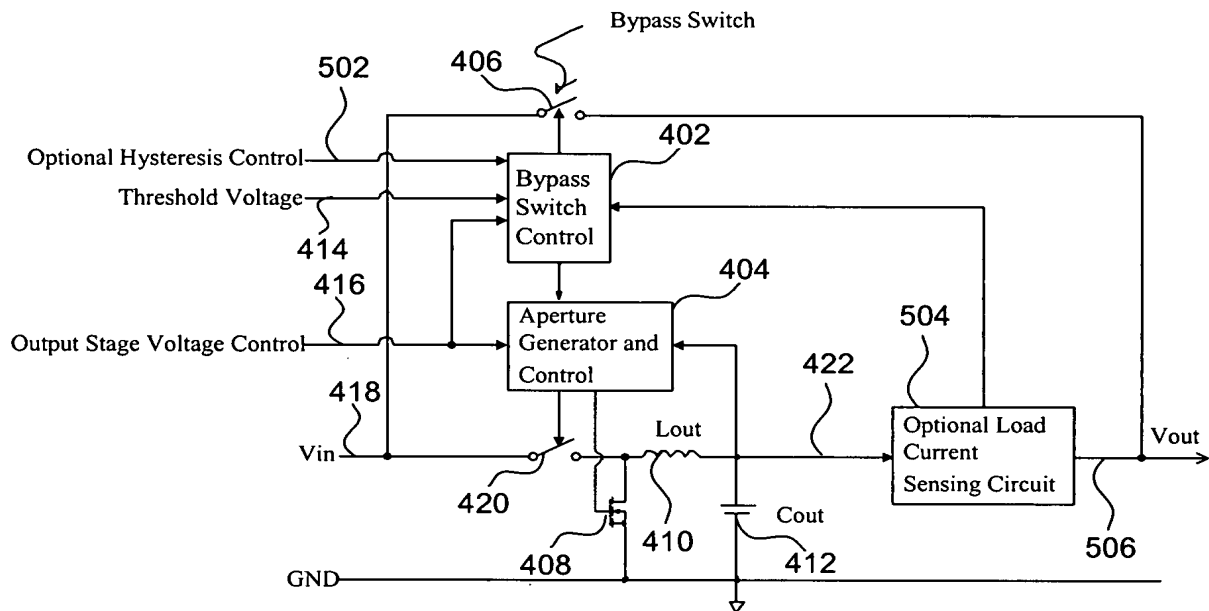


FIG. 5

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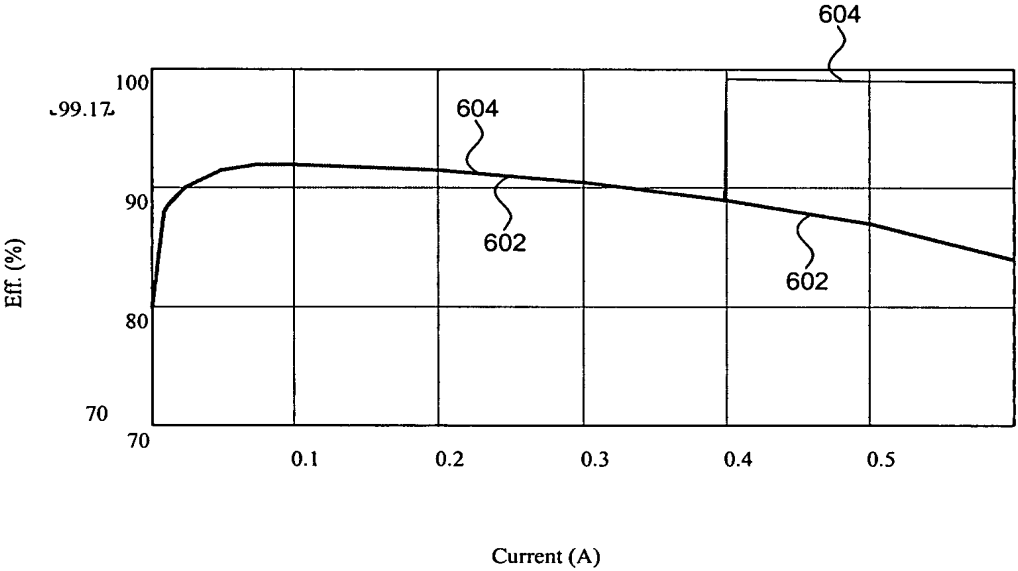


FIG. 6

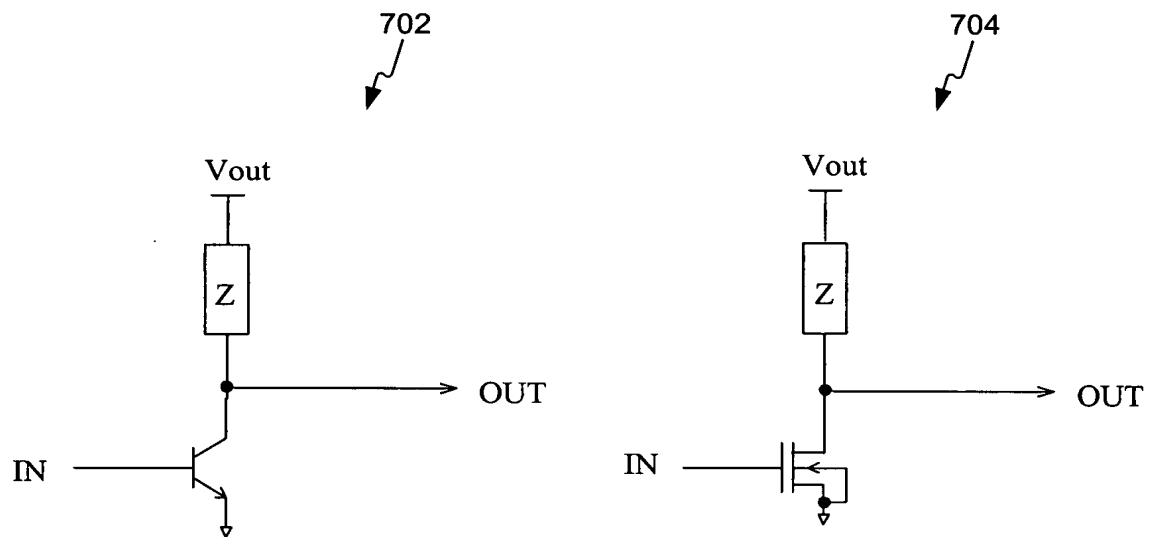


FIG. 7

0702-50.vsd/7

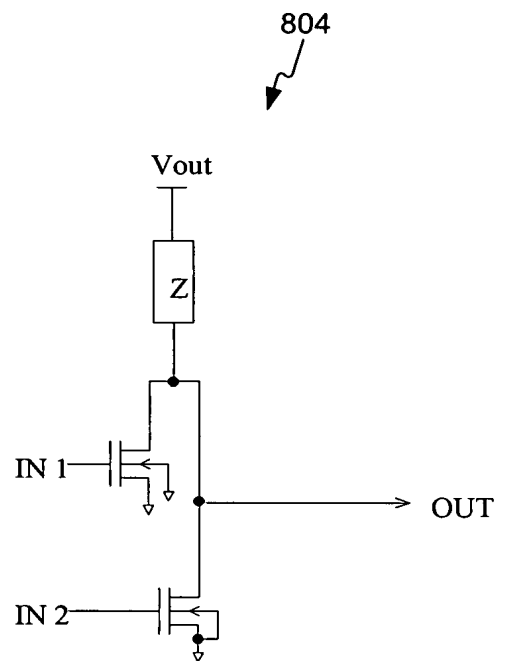
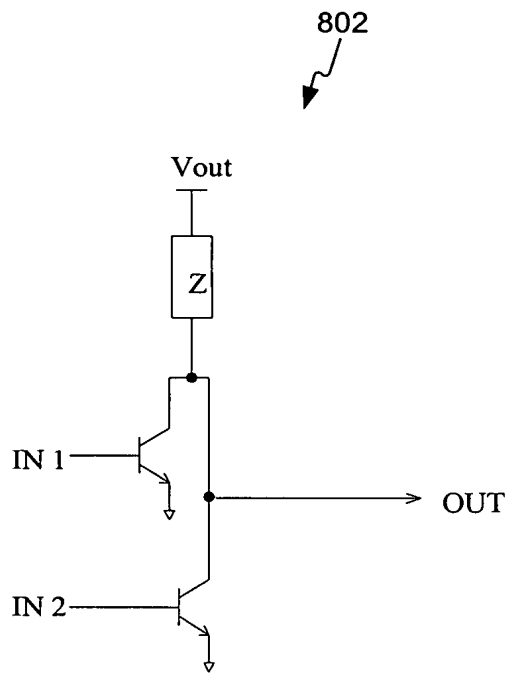


FIG. 8

FIGS. 9B-9E form a single drawing and are oriented relative to each other as shown below.

FIG. 9B	FIG. 9D
FIG. 9C	FIG. 9E

FIG. 9A

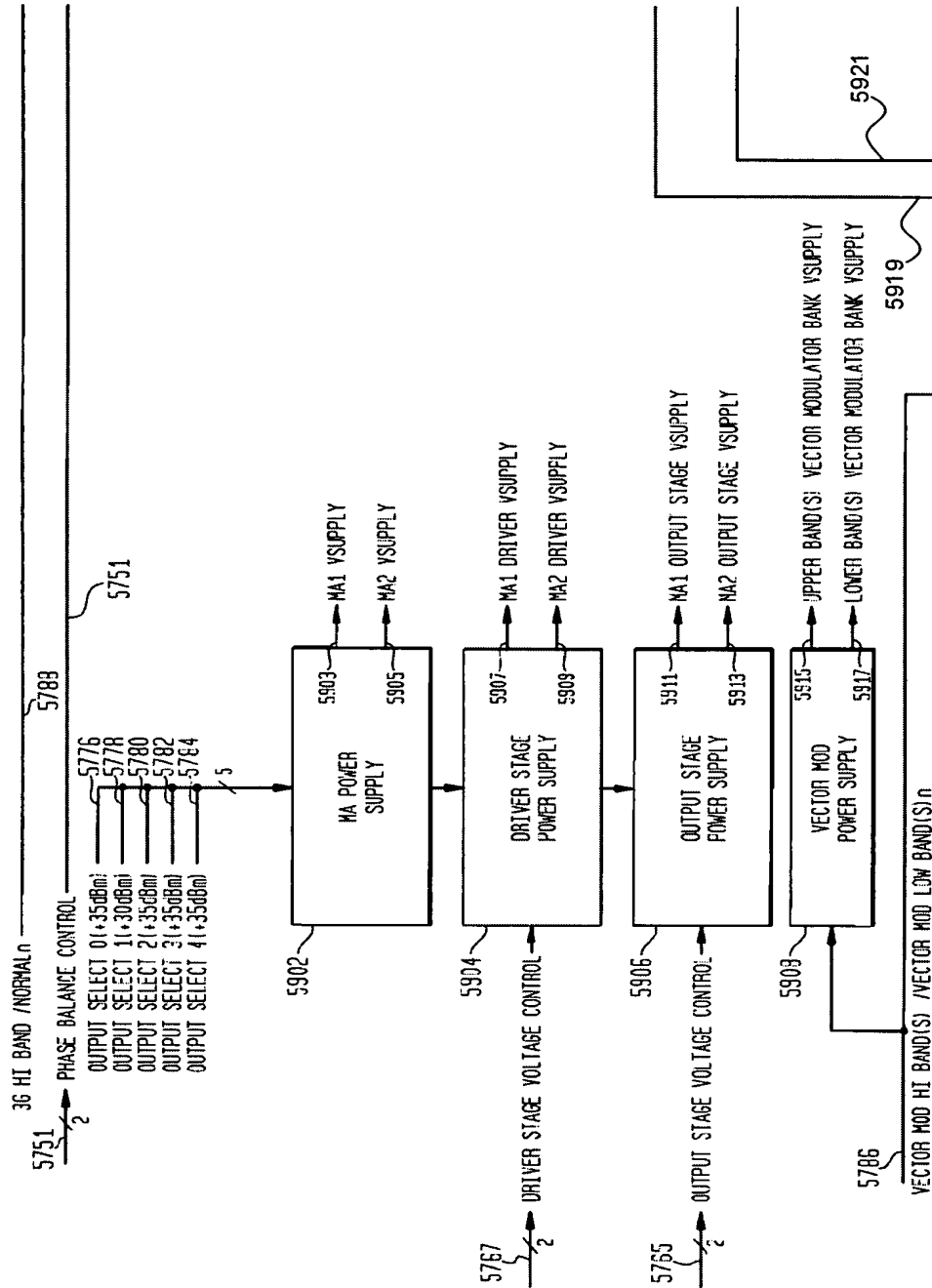


FIG. 9B

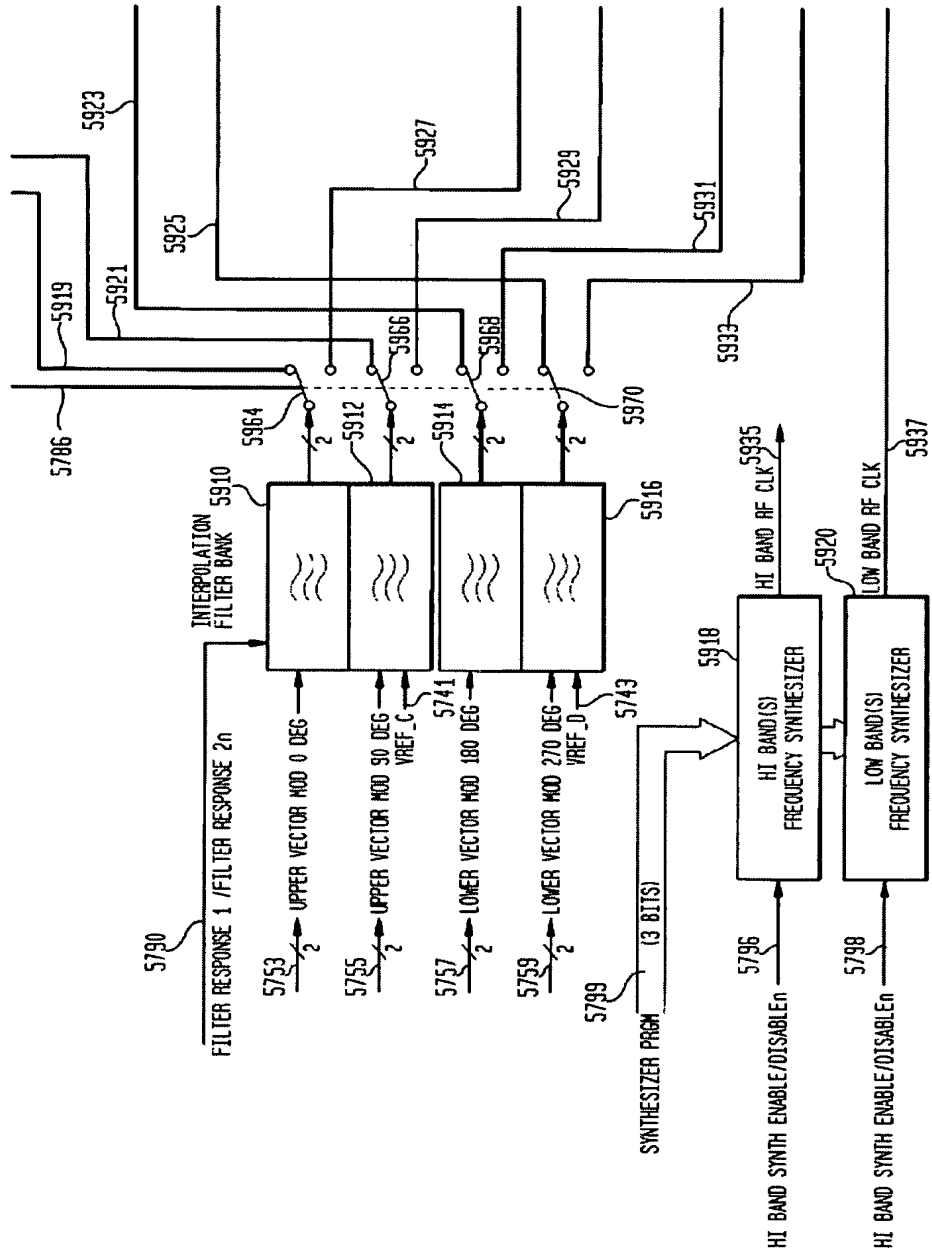


FIG. 9C

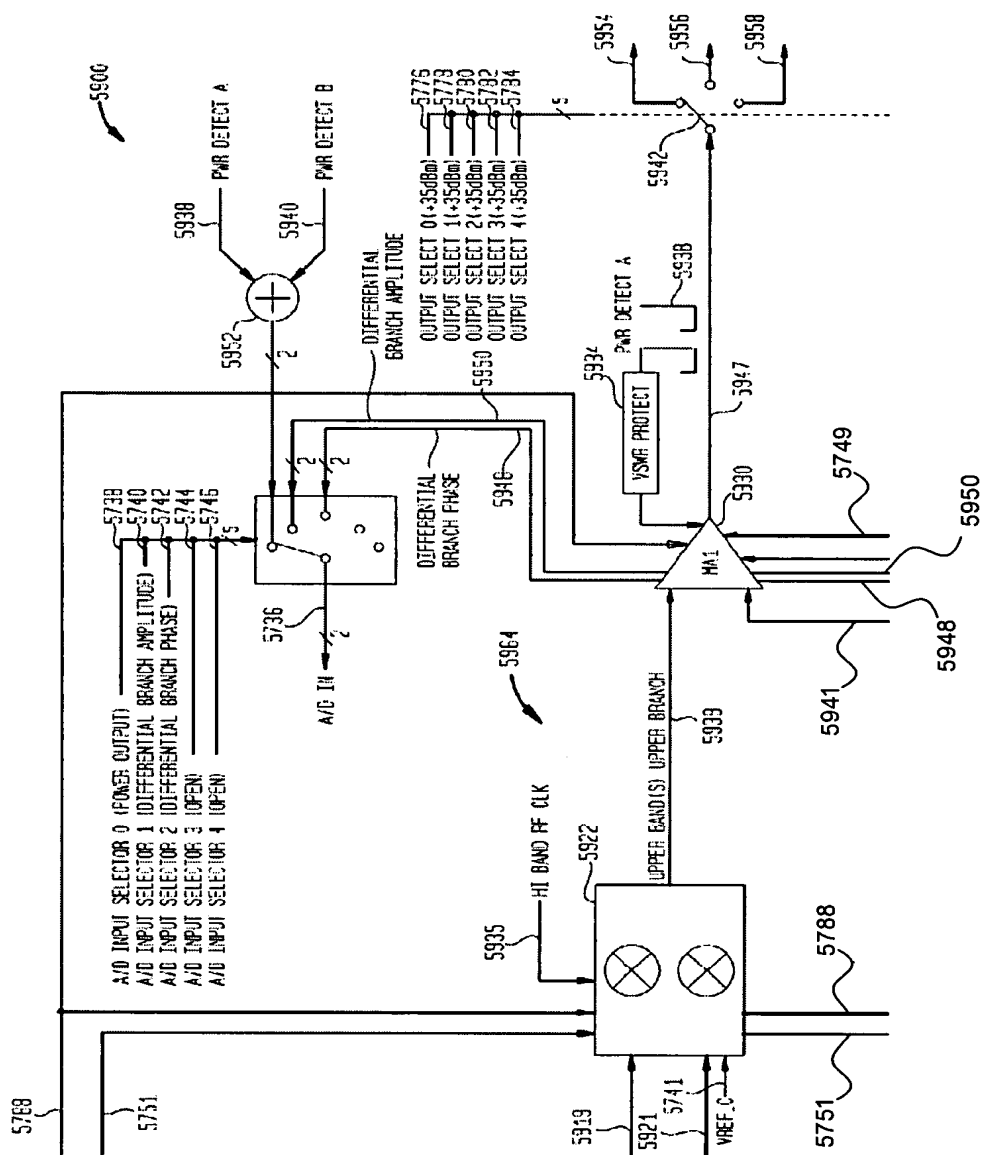


FIG. 9D

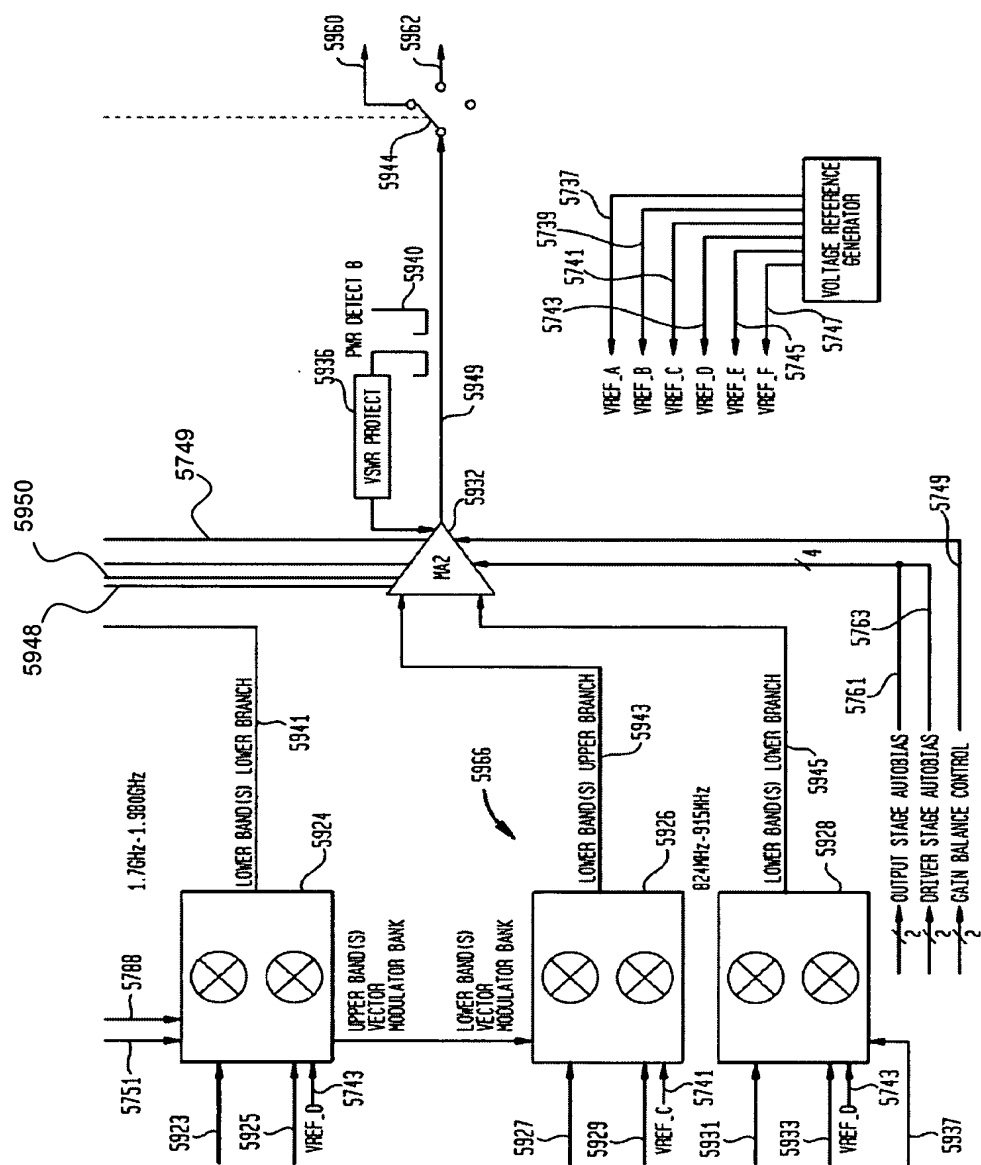


FIG. 9E

FIGS. 10B-10E form a single drawing and are oriented relative to each other as shown below:

FIG. 10B	FIG. 10D
FIG. 10C	FIG. 10E

FIG. 10A

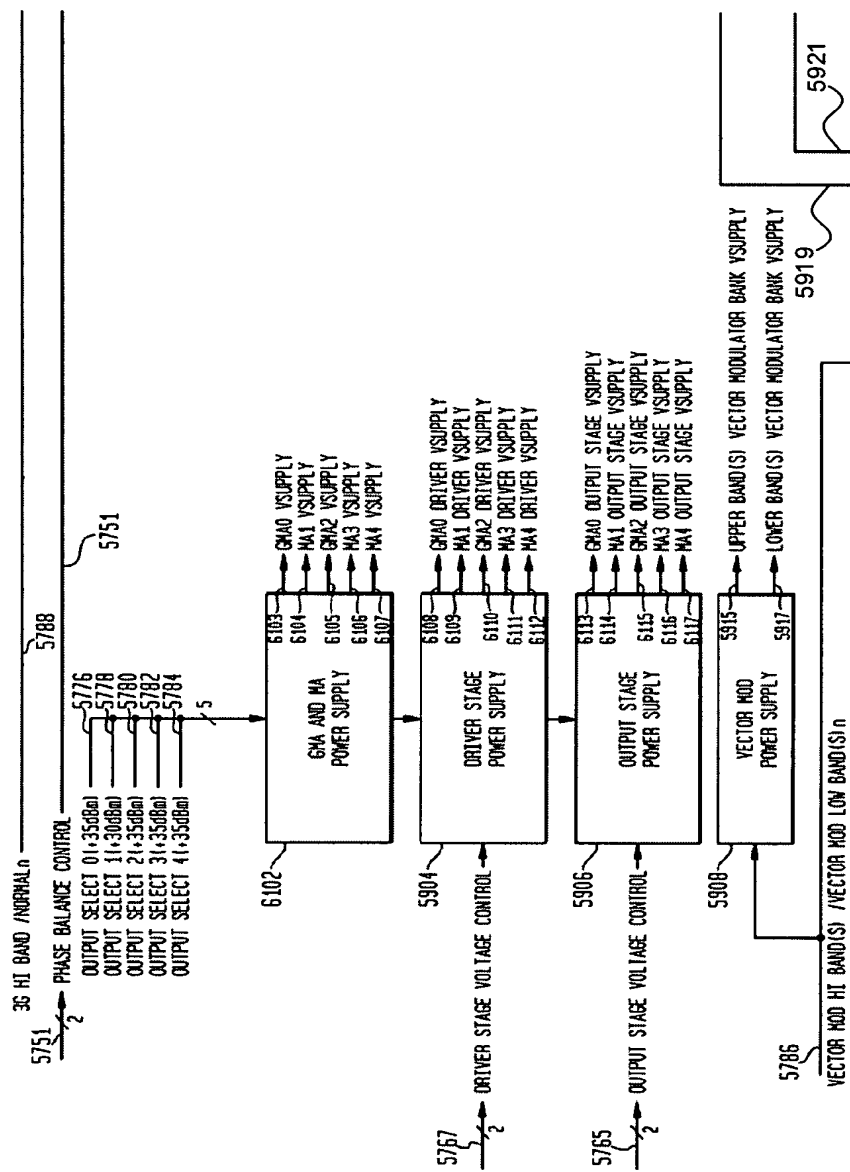


FIG. 10B

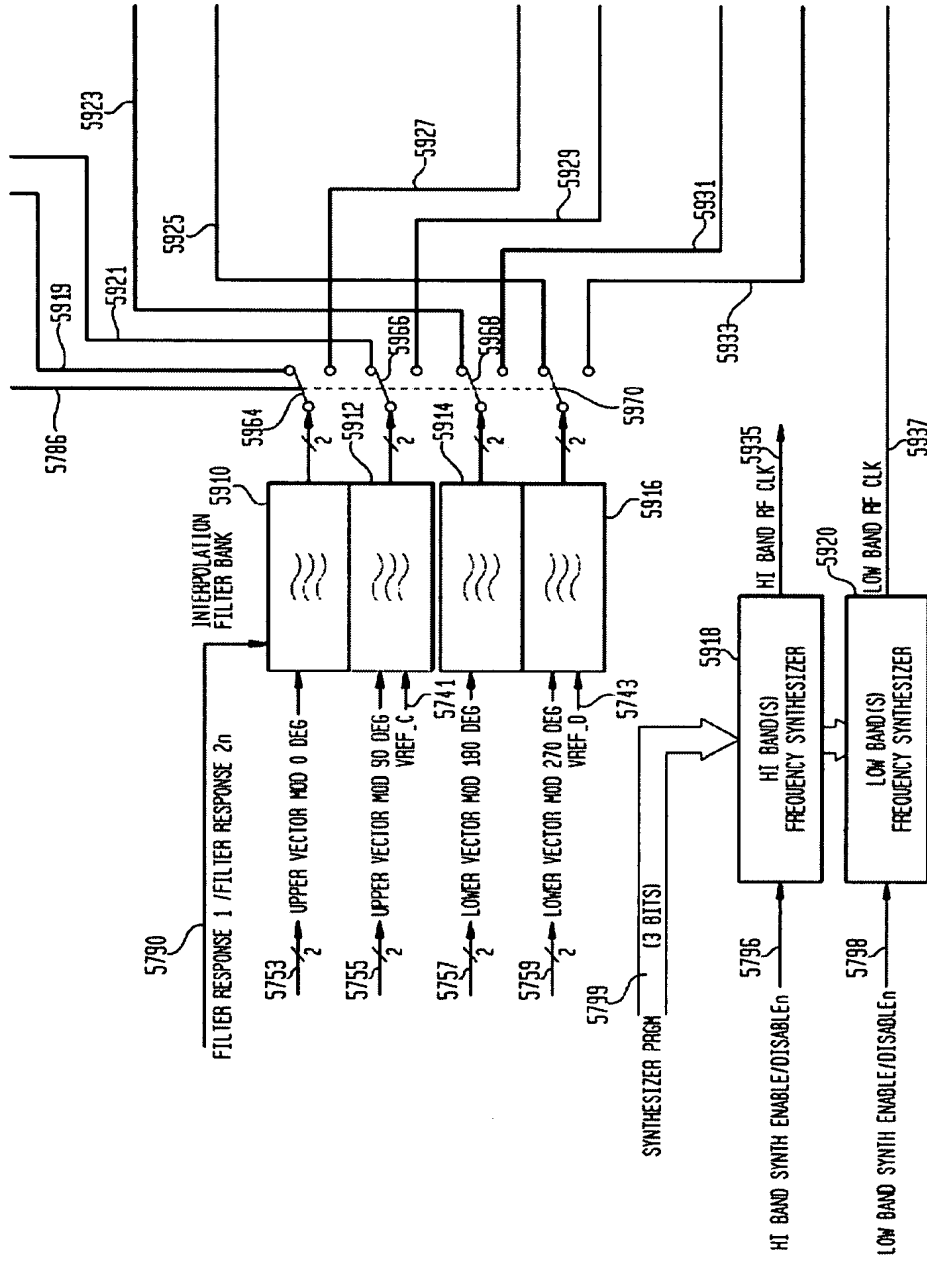


FIG. 10C

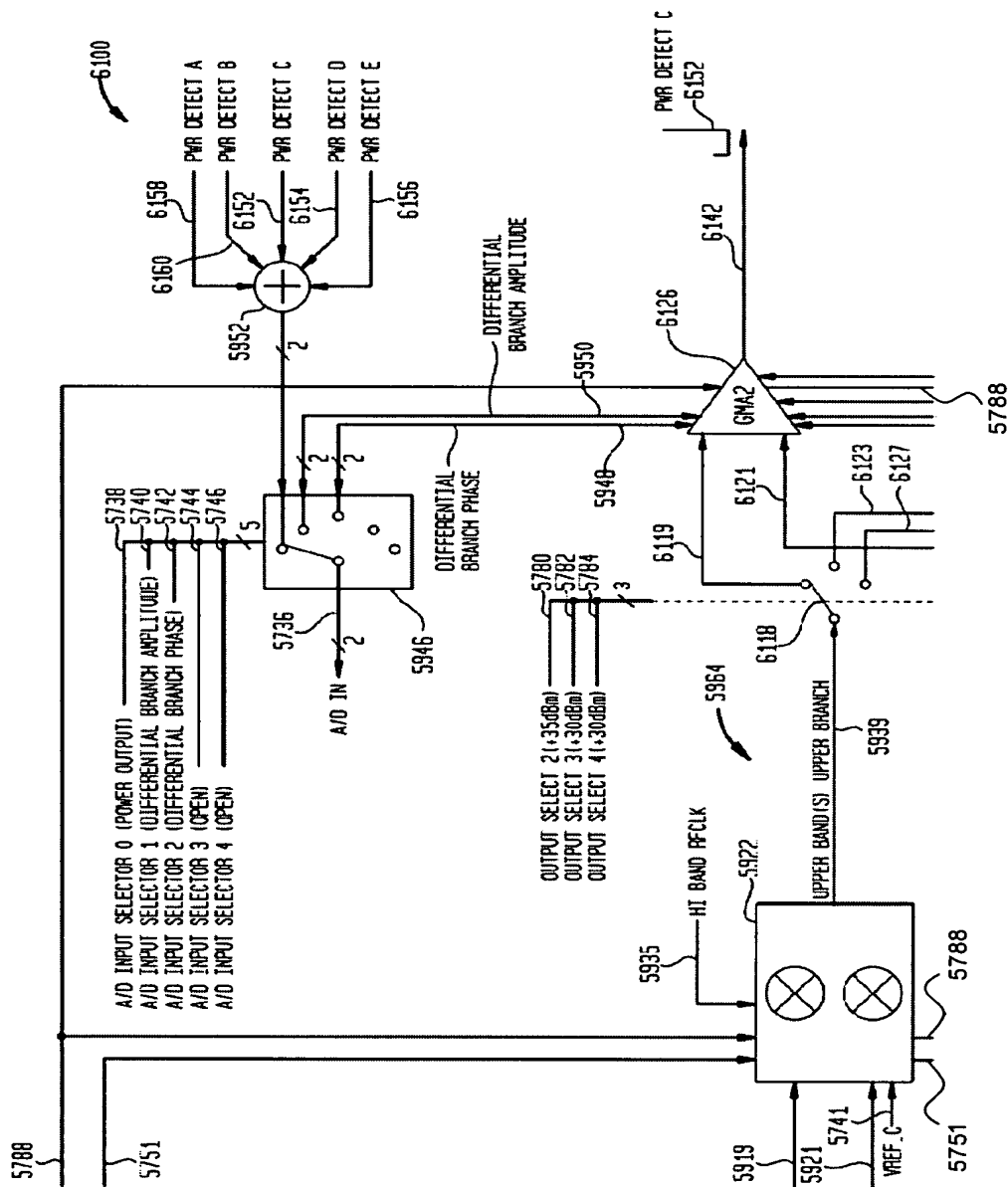


FIG. 10D

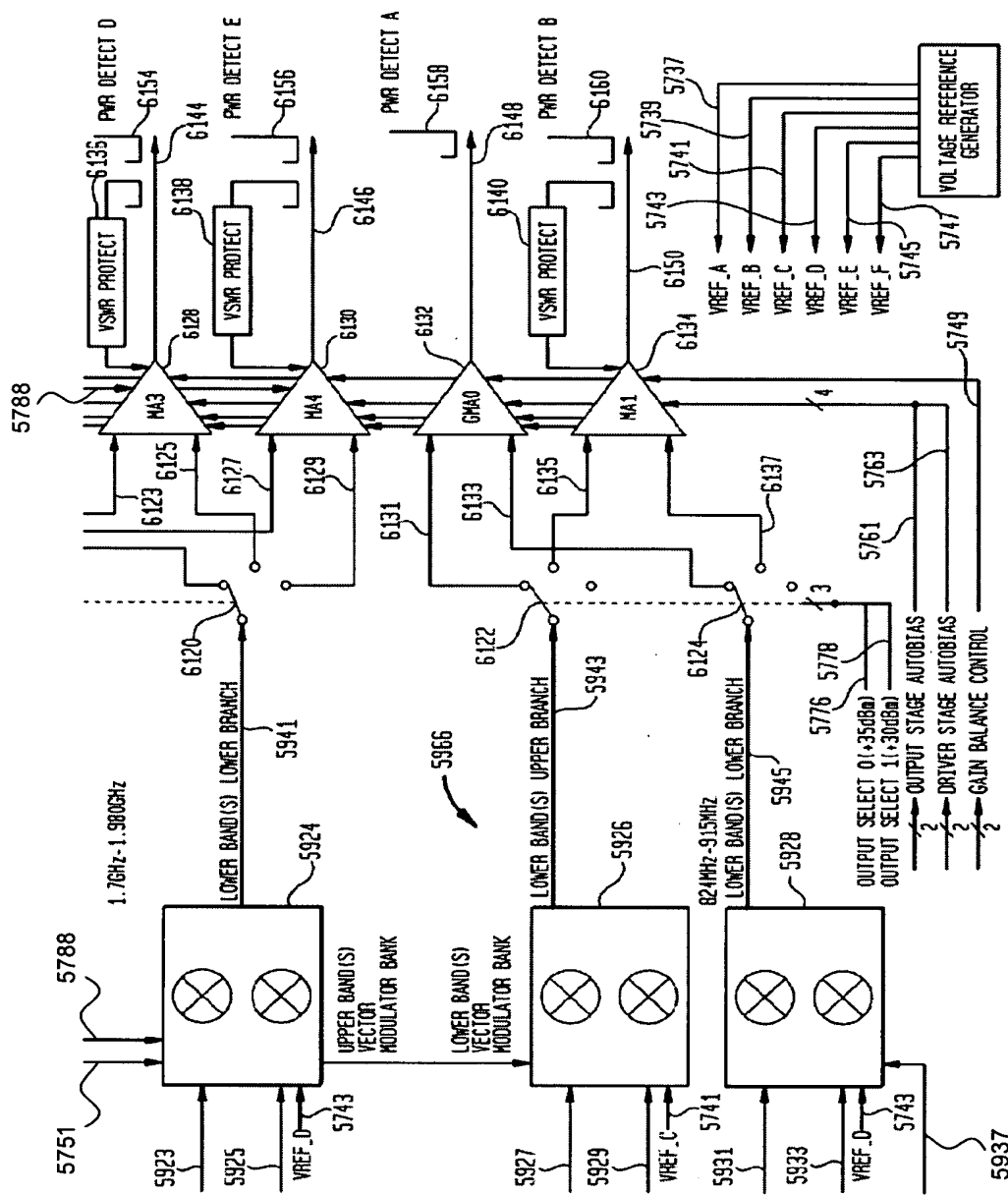


FIG. 10E

1100

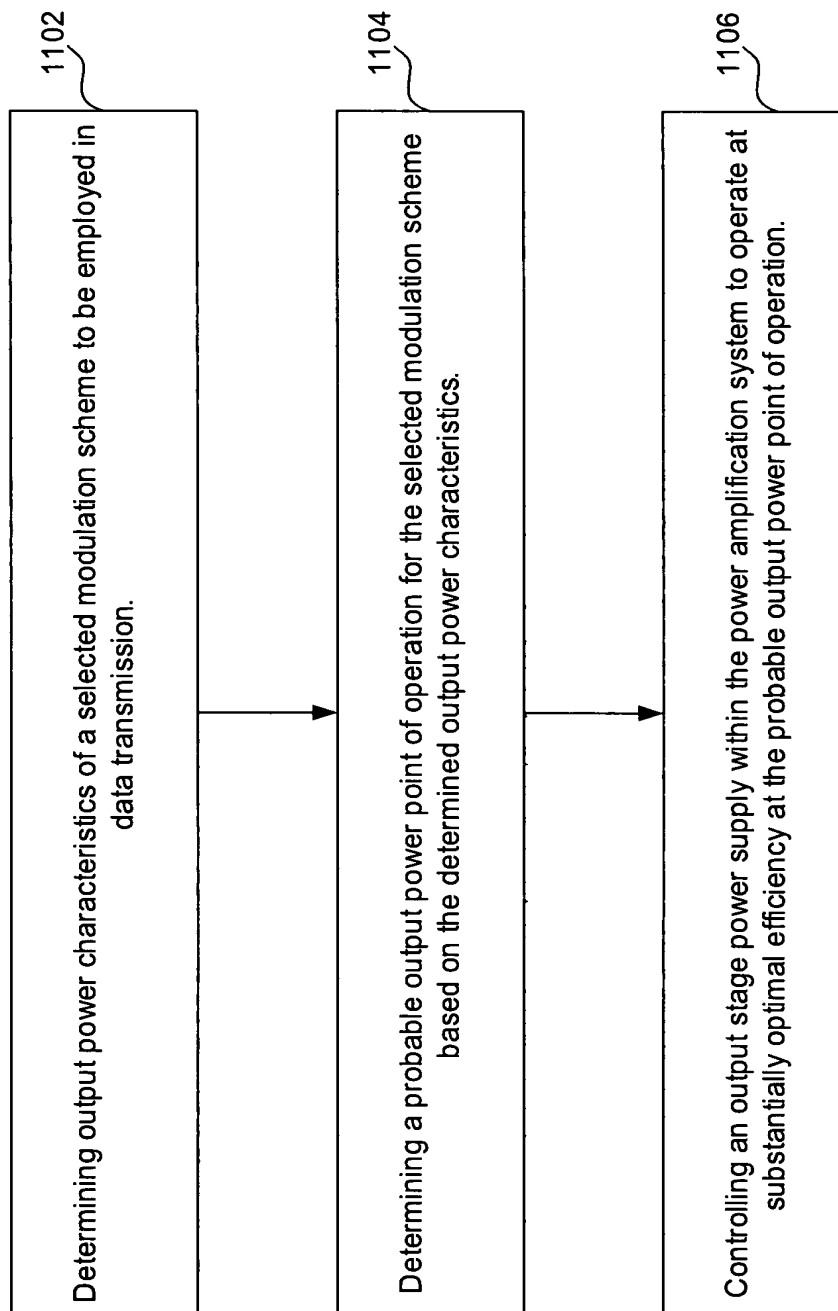


FIG. 11

0702-50.vsd/19

Filing Date: 11/08/07

Approved for use through 7/31/2006. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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** 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".

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