

10-01-2007

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11/901567

09/18/2007

To the Honorable Commissioner of Patents

103449255

original documents or copy thereof.

Name of conveying party(ies):

Richmond D. Bruno  
Arun K. Bhattacharyya  
Philip L. Metzen

Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

3. Nature of Conveyance:

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Other \_\_\_\_\_

Execution Date(s) 09/05/07; 09/05/07; 09/18/07

2. Name and address of receiving party(ies):

Name: Northrop Grumman Space & Missile  
Systems Corporation

Address: 1840 Century Park East  
Los Angeles, CA 90067-2199

Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date(s) of the application is (are): 09/05/07; 09/05/07; 09/18/07

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Carmen B. Patti  
Patti, Hewitt & Arezina LLC  
Customer Number 32205

Docket No.: NGC-335/001819-804

6. Total number of applications and patents involved: 17. Total fee (37 CFR 3.4):..... \$ 40.00

- ☐ Enclosed  
☒ Authorized to be charged to business credit card

8. Deposit account number:

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Carmen B. Patti

Name of Person Signing  
Reg. No. 26,784

Signature

September 18, 2007

Date

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Mail documents to be recorded with required cover sheet information to:

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

# ASSIGNMENT

WHEREAS, I, Richmond D. Bruno, hereinafter referred to as Assignor  
together with Arun K. Bhattacharyya and Philip L. Metzen  
have jointly invented certain new and useful improvements in RING-SLOT RADIATOR FOR BROAD-BAND OPERATION

described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Space & Mission Systems Corp., an Delaware corporation, having its principal place of business at 1840 Century Park East, Los Angeles, California 90067, hereinafter referred to as Assignee, is desirous of acquiring the entire right, title and interest in, to and under said improvements and said application:

NOW, THEREFORE, in consideration of Assignor's obligations to Northrop Grumman Corporation, and for other good and valuable consideration, the receipt and sufficiency is hereby acknowledged, Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent which may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

Assignor hereby acknowledges that at the time of making the improvements herein identified, Assignor was under an obligation to assign to Assignee, Assignor's entire right, title and interest in, to and under said improvements;

Assignor hereby covenants that Assignor has full right to convey the interest herein assigned, and that Assignor has not executed, and will not execute, any agreement in conflict herewith and that Assignee, Northrop Grumman Corporation, its successors, assigns and other legal representatives shall have the right to hold and enjoy for its and their own use and benefit, to the end of the term or terms for which such Letters Patent shall or may be granted, reissued or extended as fully and completely as the same right or could have been held and enjoyed by Assignor had this Assignment not been made.

Assignor hereby further covenants and agrees to communicate to Assignee, its successors, legal representatives and assigns, any and all facts known to Assignor respecting said improvements; to promptly provide Assignee with all documents relating to said improvements, said invention, and said Letters Patent as may be known or accessible to Assignor; to testify as to the same in any interference or litigation or other legal proceedings related thereto; to sign all lawful papers, execute all extensions, continuations, continuations-in-part, divisional and reissue applications; and to make all rightful oaths or declarations and generally do everything possible to aid Assignee, its successors, legal representatives and assigns in obtaining and enforcing all the rights herein conveyed for said improvements in all countries without further compensation, but at the expense of Assignee, its successors, legal representatives and assigns.

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 5<sup>th</sup> day of September, 2007, and has executed the referenced patent application on the 5<sup>th</sup> day of September, 2007.

Richmond D. Bruno  
Assignor's Signature

STATE OF CALIFORNIA )  
COUNTY OF LOS ANGELES ) ss

On September 5, 2007 before me, Lorna L. Schott, Notary Public, personally appeared Richmond D. Bruno, ~~personally known to me~~ or - proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledge to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Lorna L. Schott  
Notary's Signature



(Seal)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 5<sup>th</sup> day of September, 2007, and has executed the referenced patent application on the 5<sup>th</sup> day of September, 2007.

Arun K. Bhattacharya  
Assignor's Signature

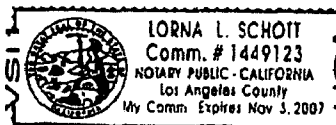
STATE OF CALIFORNIA        )  
                                      ) ss  
COUNTY OF LOS ANGELES    )

On September 5, 2007 before me, Lorna L. Schott, Notary Public, personally appeared Arun K. Bhattacharyya, ~~personally known to me or~~ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledge to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Lorna L. Schott

Notary's Signature



(Seal)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 18<sup>th</sup> day of September, 2007, and has executed the referenced patent application on the 18<sup>th</sup> day of September, 2007.

Philip L. Metzen  
Assignor's Signature

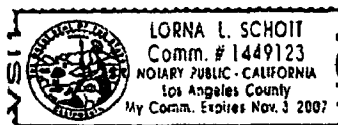
STATE OF CALIFORNIA        )  
                                      ) ss  
COUNTY OF LOS ANGELES    )

On September 18, 2007 before me, Lorna L. Schott, Notary Public, personally appeared Philip L. Metzen, ~~personally known to me or~~ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledge to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal

Lorna L. Schott

Notary's Signature



(Seal)

PATENT

RECORDED: 09/18/2007

REEL: 019913 FRAME: 0426