| , | RM COVER SHEET U.S. DEPARTMENT OF COMMERCE U.S. Patent and Trademark Office |
|--|---|
| Tab settings ⇒ ⇒ ▼ | |
| | s: Please record the attached original documents or copy thereof. |
| Name of conveying party(les); James M. Cicchiello | 2. Name and address of receiving party(ies) |
| Curtis J. Harkrider | Name: Northrop Grumman Corporation |
| | Internal Address: |
| Additional name(s) of conveying party(ies) attached? 🖳 Yes 💹 No | |
| Nature of conveyance: | 7 |
| 🖾 Assignment 🖵 Merger | |
| ☐: Security Agreement ☐ Change of Name | Street Address: 1840 Century Park East |
| Other | |
| | O'A . Too Assesses as a CA |
| | City: Los Angeles State: CA Zip: 90067 |
| Execution Date: Cicchiello: 11/24/04 Harkrider: 11/30/04 | Additional name(s) & address(es) attached? 🖵 Yes 🖾 No |
| 4. Application number(s) or patent number(s): | . 7 |
| If this document is being filed together with a new app | dication, the execution date of the application is: |
| A. Patent Application No.(s) 10/976,429 | B. Patent No.(s) |
| Additional numbers at | ttached? 📮 Yes 🔼 No |
| Name and address of party to whom correspondence concerning document should be mailed; | 6. Total number of applications and patents involved: |
| Name:Bruce B. Brunda | 7. Total fee (37 CFR 3.41)\$\frac{40.00}{} |
| Internal Address: | Enclosed |
| | Authorized to be charged to deposit account |
| Street Address: STETINA BRUNDA GARRED & BRUCKER | 8. Deposit account number: |
| 1 100 | 19-4330 |
| 75 ENTERPRISE, SUITE 250 | |
| City: ALISO VIEJO State: CA Zip: 92656 | (Attach duplicate copy of this page if paying by deposit account) |
| | THIS SPACE |
| Statement and signature. To the best of my knowledge and belief the terrogains in | |
| To the best of my knowledge and belief, the foregoing in is a true copy of the original document. | nformation is true and correct and any attached copy |
| Bruce B. Brunda | December 6, 2004 |
| Name of Person Signing | Signature December 6, 2004 December 6, 2004 |
| Total number of pages including cover | |

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

Filed together with a new patent application to: Mail Stop Patent Application Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 Not filed with new patent application to: Mall Stop Assignment Recordation Services Director of the U.S. Patent and Trademark Office P.O. Box 1450

ASSIGNMENT

, hereinafter referred to as Assignor have invented certain new and useful James M. Cicchiello improvements in ARCHITECTURE FOR LARGE-FOR EO-CRYSTAL-BASED AGILE BEAM STEERING, described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Corporation, a 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 Assignor 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 ex- | ecuted and delivered this instrumen | this 24 day of November |
|--|--|--|
| 20 <u>07</u> , and has executed the referenced patent application | on on the day of | - bee 20 64 |
| | James M. Cicchiello | U. Cicahells |
| STATE OF | | |
| COUNTY OF | _ | |
| on 11/24/04 before me. James A | | personally appeared |
| satisfactory evidence to be the person(s) whose name(s) is executed the same in his/her/their authorized capacity(les), the entity upon behalf of which the person(s) acted, execute | s/are subscribed to this instrument and that by his/her/their signature(s | to me – or – proved to me on the basis of and acknowledge to me that he/she/they) on the instrument to be the person(s), or |
| WITNESS my hand and official seal | | |
| Kartenni & Robinson | | |
| Notary's Signature | OFFICIAL SEAL KATHERINE L. ROBINSO | ON ILLINOIS (Seal) |

MY COMMISSION EXPIRES 05-18-08

PATENT REEL: 015429 FRAME: 0360

ASSIGNMENT

WHEREAS, I, <u>Curtis J. Harkrider</u>, hereinafter referred to as Assignor have invented certain new and useful improvements in <u>ARCHITECTURE FOR LARGE-FOR EO-CRYSTAL-BASED AGILE BEAM STEERING</u>, described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Corporation, a 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 Assignor 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 20_ 04 , and has executed the referenced patent a | has executed and gelivered this instrument this | 30 day of NOVEMBER |
|--|--|-----------------------------------|
| 20, and has executed the referenced patent a | oplication on the 30 day of Noverson | , 20 <u>04</u> . |
| | 1 NII | 4 |
| | Curtis J. Harkrider | |
| STATE OF <u>ILL/NOLS</u>) | | |
| COUNTY OF COOK | | |
| On | S J. HARKRIDER | , personally appeared |
| | personally known to me - o | r - proved to me on the basis of |
| satisfactory evidence to be the person(s) whose na | me(s) is/are subscribed to this instrument and ackn | owledge to me that he/she/they |
| executed the same in his/her/their authorized capaci | ity(ies), and that by his/her/their signature(s) on the in | istrument 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 | | |
| Yul . Jai | | |
| Marine X. Kabina | OFFICIAL SEAL | 3 |
| Notary's Signature | KATHERINE L. ROBINSON | { |
| | NOTARY PUBLIC - STATE OF ILLINOIS MY COMMISSION EXPIRES 05-18-06 | (Seal) |
| | A MIL OCHMUNGSHOUS ENLUGG 60-10-00 | ₹ |

PATENT

REEL: 015429 FRAME: 0361