| To the Honorable Commissioner of .                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10202.1.1.1.3 une autocircu original document(s) or copy thereof.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Name of conveying party(ies) (assignor(s)):                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Michael I. MILLER, Gary E. CHRISTENSEN, ar                                                                                                                                                                                                                                                                                                                                                                                                                                  | nd Sarang C. JOSHI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Additional name(s) of conveying party(ies) attached?                                                                                                                                                                                                                                                                                                                                                                                                                        | Jyes ⊠no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2. Name and Address of Party(ies) receiving an interest (as                                                                                                                                                                                                                                                                                                                                                                                                                 | ssignee(s)):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Name: <u>Washington University</u><br>Address: <u>One Brookings Drive</u>                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| City: <u>St. Louis</u> State: <u>MO</u><br>Country: U.S.A.                                                                                                                                                                                                                                                                                                                                                                                                                  | Zip: 63130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Additional name(s) & address(es) attached?                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. <u>Nature of Conveyance</u> :                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 🖾 Assignment 🛛 Merger                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Change of Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| □ Verified Translation □ Security Agr                                                                                                                                                                                                                                                                                                                                                                                                                                       | reement Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Execution Date: <u>September 10, 1998, September 29, 199</u>                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A. Patent Application No(s).                                                                                                                                                                                                                                                                                                                                                                                                                                                | B. <u>Patent No(s).</u><br>6 226 418 B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| A. <u>racit Application (10(3)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6,226,418 B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| A. <u>racit Application (10(3)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Others<br>5. Name and address of party to whom correspondence                                                                                                                                                                                                                                                                                                                                                                                                               | 6,226,418 B1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Others                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6,226,418 B1<br>s on additional sheet(s) attached? □ Yes ⊠ No<br>6. Total number of applications and patents involved:<br>Application(s) <u>1</u> + Patent(s): = Total <u>1</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Others<br>5. Name and address of party to whom correspondence<br>concerning document should be mailed:<br>Frank R. Agovino<br>Senniger, Powers, Leavitt & Roedel                                                                                                                                                                                                                                                                                                            | $6,226,418 \text{ B1}$ s on additional sheet(s) attached? $\Box$ Yes $\boxtimes$ No $6. \text{ Total number of applications and patents involved:}$ Application(s) 1 + Patent(s): = Total 1 $7. \text{ Total Fee (37 CFR 3.41)} \dots  $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Others<br>5. Name and address of party to whom correspondence<br>concerning document should be mailed:<br>Frank R. Agovino<br>Senniger, Powers, Leavitt & Roedel<br>One Metropolitan Square<br>16th Floor                                                                                                                                                                                                                                                                   | 6,226,418 B1         is on additional sheet(s) attached?       □ Yes       ⊠ No         6. Total number of applications and patents involved:       Application(s) 1 + Patent(s): = Total 1         7. Total Fee (37 CFR 3.41)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Others<br>5. Name and address of party to whom correspondence<br>concerning document should be mailed:<br>Frank R. Agovino<br>Senniger, Powers, Leavitt & Roedel<br>One Metropolitan Square                                                                                                                                                                                                                                                                                 | $6,226,418 \text{ B1}$ s on additional sheet(s) attached? $\Box$ Yes $\boxtimes$ No $6. \text{ Total number of applications and patents involved:}$ Application(s) 1 + Patent(s): = Total 1 $7. \text{ Total Fee (37 CFR 3.41)} \dots  $$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Others<br>5. Name and address of party to whom correspondence<br>concerning document should be mailed:<br>Frank R. Agovino<br>Senniger, Powers, Leavitt & Roedel<br>One Metropolitan Square<br>16th Floor<br>St. Louis, Missouri 63102                                                                                                                                                                                                                                      | 6,226,418 B1         is on additional sheet(s) attached?       Yes       No         6. Total number of applications and patents involved:<br>Application(s) 1 + Patent(s): = Total 1       Total 1         7. Total Fee (37 CFR 3.41)       \$ 40.00         ⊠ Enclosed       □         Authorized to be charged to deposit account         8. Deposit Account Number: 19-1345                                                                                                                                                                                                                                                                                                                                                                             |
| Others<br>5. Name and address of party to whom correspondence<br>concerning document should be mailed:<br>Frank R. Agovino<br>Senniger, Powers, Leavitt & Roedel<br>One Metropolitan Square<br>16th Floor<br>St. Louis, Missouri 63102                                                                                                                                                                                                                                      | 6,226,418 B1         is on additional sheet(s) attached?       Yes       No         6. Total number of applications and patents involved:<br>Application(s) 1 + Patent(s): = Total 1         7. Total Fee (37 CFR 3.41)       \$ 40.00         Ø       Enclosed         1       Authorized to be charged to deposit account         8. Deposit Account Number: 19-1345<br>(Duplicate copy of this sheet attached)         Ø       Charge any underpayment or credit any overpayment to                                                                                                                                                                                                                                                                     |
| <ul> <li>5. Name and address of party to whom correspondence concerning document should be mailed:</li> <li>Frank R. Agovino <ul> <li>Senniger, Powers, Leavitt &amp; Roedel</li> <li>One Metropolitan Square</li> <li>16th Floor</li> <li>St. Louis, Missouri 63102</li> <li>(314) 231-5400 (telephone)</li> </ul> </li> <li>9. Statement and signature</li> </ul>                                                                                                         | 6,226,418 B1         s on additional sheet(s) attached?       Yes       No         6. Total number of applications and patents involved:<br>Application(s) 1 + Patent(s): = Total 1         7. Total Fee (37 CFR 3.41)       \$ 40.00         Ø       Enclosed         Authorized to be charged to deposit account         8. Deposit Account Number: 19-1345<br>(Duplicate copy of this sheet attached)         Ø       Charge any underpayment or credit any overpayment to<br>above Deposit Account         DO NOT USE THIS SPACE                                                                                                                                                                                                                       |
| <ul> <li>5. Name and address of party to whom correspondence concerning document should be mailed:</li> <li>Frank R. Agovino <ul> <li>Senniger, Powers, Leavitt &amp; Roedel</li> <li>One Metropolitan Square</li> <li>16th Floor</li> <li>St. Louis, Missouri 63102</li> <li>(314) 231-5400 (telephone)</li> </ul> </li> <li>9. Statement and signature</li> </ul>                                                                                                         | 6,226,418 B1         is on additional sheet(s) attached?       Yes       No         6. Total number of applications and patents involved:<br>Application(s) 1 + Patent(s): = Total 1         7. Total Fee (37 CFR 3.41)       \$ 40.00         Ø Enclosed       Authorized to be charged to deposit account         8. Deposit Account Number: 19-1345<br>(Duplicate copy of this sheet attached)       Ø Charge any underpayment or credit any overpayment to<br>above Deposit Account                                                                                                                                                                                                                                                                    |
| <ul> <li>5. Name and address of party to whom correspondence concerning document should be mailed:</li> <li>Frank R. Agovino <ul> <li>Senniger, Powers, Leavitt &amp; Roedel</li> <li>One Metropolitan Square</li> <li>16th Floor</li> <li>St. Louis, Missouri 63102</li> <li>(314) 231-5400 (telephone)</li> </ul> </li> <li>9. Statement and signature <ul> <li>To the best of my knowledge and belief, the foregoing in</li> <li>Frank R. Agovino</li> </ul> </li> </ul> | 6,226,418 B1         s on additional sheet(s) attached?       Yes       No         6. Total number of applications and patents involved:<br>Application(s) 1 + Patent(s): = Total 1         7. Total Fee (37 CFR 3.41)       \$ 40.00         Ø Enclosed       Authorized to be charged to deposit account         8. Deposit Account Number: 19-1345<br>(Duplicate copy of this sheet attached)       Ø Charge any underpayment or credit any overpayment to<br>above Deposit Account         DO NOT USE THIS SPACE       Implication is true and correct and any attached copy is a true copy of the original document.         7. TOTUE THIS SPACE       Implication is true and correct and any attached copy is a true copy of the original document. |
| 5. Name and address of party to whom correspondence concerning document should be mailed:         Frank R. Agovino         Senniger, Powers, Leavitt & Roedel         One Metropolitan Square         16th Floor         St. Louis, Missouri 63102         (314) 231-5400 (telephone)         9. Statement and signature         To the best of my knowledge and belief, the foregoing in         Frank R. Agovino         Name of Person Signing                           | 6,226,418 B1<br>s on additional sheet(s) attached? $\Box$ Yes $\boxtimes$ No<br>6. Total number of applications and patents involved:<br>Application(s) <u>1</u> + Patent(s): <u>=</u> Total <u>1</u><br>7. Total Fee (37 CFR 3.41) \$ <u>40.00</u><br>$\boxtimes$ Enclosed<br>$\Box$ Authorized to be charged to deposit account<br>8. Deposit Account Number: <u>19-1345</u><br>(Duplicate copy of this sheet attached)<br>$\boxtimes$ Charge any underpayment or credit any overpayment to<br>above Deposit Account<br>DO NOT USE THIS SPACE<br>nformation is true and correct and any attached copy is a true copy of the original document.                                                                                                           |

PATENT REEL: 012676 FRAME: 0239

## ASSIGNMENT

WHEREAS We, the below named inventors, [hereinafter referred to as Assignors], have made an invention entitled:

## METHOD AND APPARATUS FOR IMAGE REGISTRATION

for which We executed an application for United States Letters Patent concurrently herewith or filed an application for United States Letters Patent on July 10, 1996 (Serial No. 08/678,628); and

WHEREAS, Washington University, a corporation of the State of Missouri whose post office address is One Brookings Drive, St. Louis, Missouri 63130 (hereinafter referred to as Assignee), is desirous of securing the Assignors' entire right, title, and interest in and to this invention in all countries throughout the world, and in and to the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application;

NOW THEREFORE, be it known that for and in consideration of the sum of One Dollar (\$1.00) in hand paid and other good and valuable consideration the receipt of which from assignee is hereby acknowledged, We, as assigners, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, our entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof, as well as all rights to claim priority on the basis of this application, and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, and all extensions, renewals, and reissues thereof; and We hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, We HEREBY covenant that We have the full right to convey the interest assigned by this Assignment, and We have not executed and will not execute any agreement in conflict with this Assignment;

AND, We HEREBY further covenant and agree that We will, without further consideration, communicate with assignee, its successors and assigns, any facts known to us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said assignee, its successors or assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

IN TESTIMONY WHEREOF, We have hereunto set our hands.

| County of <u>Baltinne</u> )<br>State of <u>maryland</u> ) ss. | Michael I. Miller<br>14 Bishops Rd., Baltimore, MD 21218<br><u>Millach C- Mille, 9/29/98</u><br>(Signature) (Date) |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|

| Subscribed and swora-to before me                                         | e this <u>29</u> 1 | thay of Lep | t. , 19 <u>98</u> |        |      |      |
|---------------------------------------------------------------------------|--------------------|-------------|-------------------|--------|------|------|
| Subscribed and sworn to before me<br>Jean Kajder Pugh<br>Jean Kajder Pugh | Public             |             | . [               | in Jun | v 1, | 2002 |
|                                                                           | ny                 | Connise     | con effe          |        |      |      |

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P. • WASHINGTON, D.C.

PATENT REEL: 9575 FRAME: 0074 PATENT REEL: 012676 FRAME: 0240

| County of Jerry A         | <u>)</u> )                         | SS.             | Gary E. Christensen<br>1352 Wild Prarie Dr., Iowa City, IC | ,<br>) 52246              |
|---------------------------|------------------------------------|-----------------|------------------------------------------------------------|---------------------------|
| Subscribed and swom to    | before me this <u>to</u>           | day of $S_{ap}$ |                                                            | 9/10/98<br>(Date)         |
| County of                 | )<br>)                             | SS.             | Sarang C. Joshi<br>4346 Laclede, St. Louis, MO 63108       | 5<br>n Expires<br>3, 2000 |
| Subscribed and sworn to b | efore me this d<br>, Notary Public | lay of          | (Signature)<br>_, 19                                       | (Date)                    |

PATENT REEL: 9575 FRAME: 0077 PATENT REEL: 012676 FRAME: 0241

1

| County of)                             | SS.                                   | Gary E. Christensen<br>1352 Wild Prarie Dr., Iowa City, IO 52246 |                                     |  |
|----------------------------------------|---------------------------------------|------------------------------------------------------------------|-------------------------------------|--|
| State of)                              |                                       |                                                                  |                                     |  |
|                                        |                                       | (Signature)                                                      | (Date)                              |  |
| Subscribed and sworn to before me this | day of                                | , 19                                                             |                                     |  |
| County of) State of)                   | <b>S</b> S.                           | Sarang C. Joshi<br>4346 Laclede, St Louis, MO 6<br>(Signature)   | 3108<br><u>10/06/9</u> 3.<br>(Date) |  |
| Subscribed and sworn to before me this | s <u>6</u> day of <u>OCtobe</u><br>ic | <u>_ 192.855 (17</u>                                             |                                     |  |
|                                        |                                       |                                                                  |                                     |  |

CARLA J. HAWKINS Notary Public - Notary Seal STATE OF MISSOURI St. Louis County My Commission Expires: Jan. 15, 2002

RECORDED: 11/12/1998 RECORDED: 03/05/2002 PATENT REEL: 9575 FRAME: 0079 PATENT REEL: 012676 FRAME: 0242