

## PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

| SUBMISSION TYPE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NEW ASSIGNMENT                              |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|---------------------------------------------|------------------------|------------------|------------------|------------|------------------------|------------|-----------------|------------|-----------------|------------|---------------------|------------|------------------|------------|-------------------|------------|---------------|------------|
| NATURE OF CONVEYANCE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ASSIGNMENT                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| CONVEYING PARTY DATA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                             |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| <table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Margaret R. Charlebois</td> <td>07/16/2012</td> </tr> <tr> <td>Rashmi D. Chatty</td> <td>07/18/2012</td> </tr> <tr> <td>Christopher D. Hanudel</td> <td>07/17/2012</td> </tr> <tr> <td>Robert D. Herzl</td> <td>07/16/2012</td> </tr> <tr> <td>David W. Milton</td> <td>07/16/2012</td> </tr> <tr> <td>Clarence R. Ogilvie</td> <td>07/16/2012</td> </tr> <tr> <td>Paul M. Schanely</td> <td>07/23/2012</td> </tr> <tr> <td>Matthew P. Szafir</td> <td>07/16/2012</td> </tr> <tr> <td>Tad J. Wilder</td> <td>07/16/2012</td> </tr> </tbody> </table> |                                             | Name          | Execution Date                              | Margaret R. Charlebois | 07/16/2012       | Rashmi D. Chatty | 07/18/2012 | Christopher D. Hanudel | 07/17/2012 | Robert D. Herzl | 07/16/2012 | David W. Milton | 07/16/2012 | Clarence R. Ogilvie | 07/16/2012 | Paul M. Schanely | 07/23/2012 | Matthew P. Szafir | 07/16/2012 | Tad J. Wilder | 07/16/2012 |
| Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Execution Date                              |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Margaret R. Charlebois                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Rashmi D. Chatty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 07/18/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Christopher D. Hanudel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 07/17/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Robert D. Herzl                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| David W. Milton                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Clarence R. Ogilvie                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Paul M. Schanely                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 07/23/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Matthew P. Szafir                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Tad J. Wilder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 07/16/2012                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| RECEIVING PARTY DATA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                             |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| <table border="1"> <tr> <td>Name:</td> <td>International Business Machines Corporation</td> </tr> <tr> <td>Street Address:</td> <td>New Orchard Road</td> </tr> <tr> <td>City:</td> <td>Armonk</td> </tr> <tr> <td>State/Country:</td> <td>NEW YORK</td> </tr> <tr> <td>Postal Code:</td> <td>10504</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                    |                                             | Name:         | International Business Machines Corporation | Street Address:        | New Orchard Road | City:            | Armonk     | State/Country:         | NEW YORK   | Postal Code:    | 10504      |                 |            |                     |            |                  |            |                   |            |               |            |
| Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | International Business Machines Corporation |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Street Address:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | New Orchard Road                            |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| City:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Armonk                                      |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| State/Country:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NEW YORK                                    |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Postal Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10504                                       |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| PROPERTY NUMBERS Total: 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                             |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| <table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13558498</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                             | Property Type | Number                                      | Application Number:    | 13558498         |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Property Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Number                                      |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Application Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 13558498                                    |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| CORRESPONDENCE DATA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                             |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Fax Number:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5184490047                                  |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Phone:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 518-449-0044                                |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Email:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | drubbone@hoffmanwarnick.com                 |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                             |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Correspondent Name:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hoffman Warnick LLC                         |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Address Line 1:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 540 Broadway                                |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |
| Address Line 2:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4th Floor                                   |               |                                             |                        |                  |                  |            |                        |            |                 |            |                 |            |                     |            |                  |            |                   |            |               |            |

CH \$40.00 13558498

Address Line 4: Albany, NEW YORK 12207

ATTORNEY DOCKET NUMBER:

BUR920110187US1

NAME OF SUBMITTER:

Elaine Chi Berlin

Total Attachments: 6

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IBM DOCKET NUMBER: **BUR920110187US1**  
**ASSIGNMENT**

Whereas, the undersigned Inventor(s) has/have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") in:

Title of the Invention: **IMPROVED RING OSCILLATOR**

and further identified by the IBM Docket Number provided above in the header of this Assignment, for which an application for a United States Patent was executed concurrently herewith or was filed having:

Serial Number: 13/558,498 (insert series code and serial number here if/when available)

Whereas, International Business Machines Corporation, a corporation of New York having a place of business at Armonk, New York (herein referred to as "IBM"), desires to acquire, and each undersigned Inventor desires to grant to IBM, the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, each undersigned Inventor ("ASSIGNOR") hereby sells, assigns, and otherwise transfers to IBM (the "ASSIGNEE"), its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, each undersigned Inventor hereby authorizes and requests the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to IBM, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by IBM, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made; and each undersigned Inventor agrees to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in IBM, its successors, legal representatives, and assigns, whenever requested by IBM, its successors, legal representatives, or assigns.

Each undersigned Inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to IBM and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned Inventor also hereby grants IBM, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent application Serial Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

[Inventor Signature Page to Follow]

IBM DOCKET NUMBER: BUR920110187US1

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Executed by Inventor 1 of 9

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Signature: Margaret R. Charlebois Date: 7/16/2012  
Margaret R. Charlebois

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Executed by Inventor 2 of 9

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Rashmi D. Chetty

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Executed by Inventor 3 of 9

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Signature: Christopher D. Hamudal Date: 7/17/12  
Christopher D. Hamudal

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Executed by Inventor 4 of 9

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Signature: Robert D. Herzl Date: 7/16/12  
Robert D. Herzl

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Executed by Inventor 5 of 9

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Signature: David W. Milton Date: 7-16-2012  
David W. Milton

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IBM DOCKET NUMBER: BUR920110187US1

Executed by Inventor 6 of 9

Signature: Clarence R. Ogilvie Date: 7/16/2012  
Clarence R. Ogilvie

Executed by Inventor 7 of 9

Signature: Paul M. Schanely Date: 7/23/2012  
Paul M. Schanely

Executed by Inventor 8 of 9

Signature: Matthew P. Szafir Date: 7/16/12  
Matthew P. Szafir

Executed by Inventor 9 of 9

Signature: Tad J. Wilder Date: 7/16/12  
Tad J. Wilder

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[Inventor Signature Page to Follow]

Executed by Inventor 1 of 9

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Margaret R. Charlebois

Executed by Inventor 2 of 9

Signature: Rashmi D. Chetty Date: 18 July 2012  
Rashmi D. Chetty

Executed by Inventor 3 of 9

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Christopher D. Hanudel

Executed by Inventor 4 of 9

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Robert D. Herzl

Executed by Inventor 5 of 9

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
David W. Milton

**Executed by Inventor 6 of 9**

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Clarence R. Ogilvie**

**Executed by Inventor 7 of 9**

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Paul M. Schanely**

**Executed by Inventor 8 of 9**

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Matthew P. Szafir**

**Executed by Inventor 9 of 9**

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Tad J. Wilder**