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| FORM PTO-1595 (modified)                                                                                                                                                                                                                            | 02 - 18 - 2004 U.S. DEPARTMENT OF COMMERCE Patent and Trademark Office                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
| 2.11.00 FEB 1 1 20 A                                                                                                                                                                                                                                | IN THE SAME BELL BOX OF THE SAME BOX OF THE SA |  |  |
| To the Honorable Assistant Secretary and Commission                                                                                                                                                                                                 | rd the attached original docume                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| thereof.                                                                                                                                                                                                                                            | 102670683                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
| 1. Name of conveying party(ies): (1) Toshihiko SETOGUCHI (2) Yuichi FUJIOKA (3) Yoshihiko TSUCHIYAMA (4) Akinori YASUTAKE (5) Matsuhei NODA (6) Norihisa KOBAYASHI (7) Ryoichi NISHIDA (8) Hitoshi NISHINO (9) Katsuhide OKIMI (10) Akihiro HACHIYA | Name and address of receiving party(ies):  Name: (1) MITSUBISHI HEAVY INDUSTRIES, LTD. & (2) OSAKA GAS CO., LTD.  Street Address: (1) 5-1, Marunouchi 2-chome, Chiyoda-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
| Additional name(s) of conveying party(ies) attached? NO                                                                                                                                                                                             | ku, Tokyo, Japan & (2) 1-2 Hirano-machi 4-chome, Chuo-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
| Nature of conveyance:                                                                                                                                                                                                                               | <u>ku, Osaka-shi, Osaka, Japan</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |
| X Assignment Merger Security Agreement Change of Name Other Execution Date: April 9, 2003                                                                                                                                                           | Additional name(s) & address(es) attached? NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |
| 4. Application number(s) or patent number(s):                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| If this document is being filed together with a new application,  A. Patent Application No.(s) 10/369,749, filed February 21, 2003  Additional number                                                                                               | the execution date of the application is:    B. Patent No.(s)  ers attached? NO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| 5. Name and address of party to whom correspondence                                                                                                                                                                                                 | 6. Total number of applications and patents involved: 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
| concerning document should be mailed:                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| Name: WENDEROTH, LIND & PONACK, L.L.P. Attn: Nils E. Pedersen, Esq.                                                                                                                                                                                 | 7. Total fee (37 CFR 3.41) \$ 40.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Street Address: 2033 K Street, N.W., Suite 800                                                                                                                                                                                                      | X Enclosed (Check No. (OUS)  Authorized to be charged to deposit account                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| City: Washington, State: DC ZIP: 20006-1021                                                                                                                                                                                                         | 8. Deposit account number: 23-0975                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |
| DO NOT LOS                                                                                                                                                                                                                                          | (Attach duplicate copy of this page if paying by deposit account)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
| DO NOT USE                                                                                                                                                                                                                                          | ETHIS SPACE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |
| document.                                                                                                                                                                                                                                           | is true and correct and any attached copy is a true copy of the original                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| Nils E. Pedersen, Reg. No. 33,145  Name of Person Signing  Signature                                                                                                                                                                                | February 11, 2004 Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
| Name of Ferson Oigning Signature (6)                                                                                                                                                                                                                | Total number of pages including cover sheet: 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |
| OMB No. 0651-0011 (exp. 4/94)                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| Mail documents to be recorded with required cover sheet information:                                                                                                                                                                                | THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT THE PAGE OUT IN THE STREET OF PAGE OUT IN THE STREET OF PAGE OUT IN THE STREET OF PAGE OUT IN THE PAGE OUT IN TH |  |  |
| Box Ass                                                                                                                                                                                                                                             | ignments<br>, D.C. 20231                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| reviewing the document and gathering the data needed, and completi burden estimate to the U.S. Patent and Trademark Office, Office of In Management and Budget, Paperwork Reduction Project (0651-0011),                                            | erage about 30 minutes per document to be recorded, including time foing and reviewing the sample cover sheet. Send comments regarding the formation Systems, PK2-1000C, Washington, D.C. 20231, and the Off Washington, D.C. 20503.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
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| FORM PTO-1595 (modified)                                                                                                                                                   | RECORD 05                                                                            | 3-27-2003                                                      | U.S. DEPARTMENT OF COMMERCE  Patent and Trademark Office           |
| MAY 2 1 200                                                                                                                                                                | 3 2 2                                                                                |                                                                |                                                                    |
| To the Honorable Assistant sucretary and or copy(ies) thereof.                                                                                                             | Commissio                                                                            | 2457087                                                        | ord the attached original document(s)                              |
| 1. Name of conveying party(ies)                                                                                                                                            | 5.21.0                                                                               | \ <del>/ / </del>                                              | of receiving party(ies):                                           |
| (2) Yuichi FUJIOKA (7) I<br>(3) Yoshihiko TSUCHIYAMA (8) F                                                                                                                 | Norihisa KŌBAƳ <b>N</b> SHT<br>Ryoichi NISHIDA<br>Hitoshi NISHINO<br>Katsuhide OKIMI | Name: (1) MITSU<br>& (2) OSAKA GAS                             | IBHISH HEAVY INDUSTRIES, LTD.<br>S CO., LTD.                       |
|                                                                                                                                                                            | Akihiro HACHIYA                                                                      | Chiyoda-ku, Tokyo                                              | 1) 5-1, Marunouchi 2-chome,<br>o, Japan & (2) 1-2 Hirano-machi 4-  |
| Additional name(s) of conveying party(ies) attacts. Nature of conveyance:                                                                                                  | chear NO                                                                             | <u>chome, Chuo-ku,</u>                                         | Osaka-shi, Osaka, Japan                                            |
| X Assignment Security Agreement Other Execution Date: April 9, 2003                                                                                                        | Merger<br>Change of Name                                                             | Additional name(s) & addr                                      | ress(es) attached? <u>NO</u>                                       |
| 4. Application number(s) or patent nu                                                                                                                                      | mber(s):                                                                             |                                                                |                                                                    |
| If this document is being filed together A. Patent Application No.(s) 10/369,749, filed February 21                                                                        | 1, 2003                                                                              | tion, the execution date of B. Patent No.(s) pers attached? NO | of the application is:                                             |
|                                                                                                                                                                            |                                                                                      |                                                                |                                                                    |
| <ol><li>Name and address of party to who<br/>concerning document should be ma</li></ol>                                                                                    |                                                                                      | 6. Total number of a                                           | pplications and patents involved: 1                                |
| Name: <u>WENDEROTH, LIND &amp; PON</u> <u>Attn: Nils E. Pedersen , Esc</u>                                                                                                 |                                                                                      | 7. Total fee (37 CFR                                           | 3.41)\$40.00                                                       |
| Street Address: 2033 K Street, N.                                                                                                                                          | .W., Suite 800                                                                       | _                                                              | Check No. 55744 ) be charged to deposit account                    |
| City: Washington, State: DC ZIP:                                                                                                                                           | 20006-1021                                                                           | 8. Deposit account r                                           | number: 23-0975  y of this page if paying by deposit account)      |
|                                                                                                                                                                            | DO NOT US                                                                            | E THIS SPACE                                                   |                                                                    |
| 9. Statement and signature.  To the best of my knowledge and belie                                                                                                         | ef, the foregoing informa                                                            | tion is true and correct and                                   | any attached copy is a true copy of the                            |
| original document.                                                                                                                                                         |                                                                                      | I Marin                                                        |                                                                    |
| Nils E. Pedersen , Reg. No. 33,145  Name of Person Signing                                                                                                                 | Signature                                                                            | - Journal -                                                    | May 21, 2003<br>Date                                               |
|                                                                                                                                                                            |                                                                                      | Total numb                                                     | per of pages including cover sheet: 3                              |
| OMB No. 0651-0011 (exp. 4/94)                                                                                                                                              | Do not deta                                                                          | ach this portion                                               |                                                                    |
| Mail documents to be recorded with requir                                                                                                                                  |                                                                                      | •                                                              | 10 m                                                               |
| Commi                                                                                                                                                                      |                                                                                      | ecretary of Patents and Trad                                   | lemarks                                                            |
| 23/2003 ECOMPER 00000101 10369749  Box Assignments  Washington, D.C. 20231                                                                                                 |                                                                                      |                                                                |                                                                    |
| Public burden reporting for this sample continue for reviewing the document and gath comments regarding this burden estimate Washington, D.C. 20231, and the Office 20503. | hering the data needed, at to the U.S. Patent and $\mathbb{R}$                       | and completing and reviewing<br>Frademark Office, Office of    | ng the sample cover sheet. Send<br>Information Systems, PK2-1000C, |

2002--01/18-- 2SP13810 TX1/13課度証/2

## ASSIGNMENT

|                               | In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned                            |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | (1)Toshihiko Setoguchi; (2)Yuichi Fujioka; (3)Yoshihiko Tsuchiyama;                                                                                     |
|                               | (4)Akinori Yasutake; (5)Matsuhei Noda; (6)Norihisa Kobayashi;                                                                                           |
| Insert Name(s) of Inventor(s) | (7) Ryoichi Nishida; (8) Hitoshi Nishino; (9) Katsuhide Okimi;                                                                                          |
|                               | and (10)Akihiro Hachiya                                                                                                                                 |
|                               |                                                                                                                                                         |
|                               | the undersigned hereby sell(s) and assign(s) to                                                                                                         |
| Insert Name(s) of Assignee(s) | (1)MITSUBISHI HEAVY INDUSTRIES, LTD.; and (2)OSAKA GAS CO., LTD. (1):5-1, Marunouchi 2-chome, Chiyoda-ku, Tokyo, Japan                                  |
| Address                       | of (2):1-2 Hirano-machi 4-chome, Chuo-ku, Osaka-shi, Osaka, Japan                                                                                       |
|                               | (hereinafter designated as the Assignee) the entire right, title and interest for the United States as defined in 35 USC 100, in the invention known as |
|                               | MANUFACTURING METHOD FOR A CARBON NANOMATERIAL, A MANUFACTURING APPARATUS                                                                               |
| Title of<br>Invention         | FOR A CARBON NANOMATERIAL, AND MANUFACTURING FACILITY FOR A CARBON                                                                                      |
|                               | NANOMATERIAL for which an application for patent in the United States has been executed by the undersigned on                                           |
| Date of Signing Application   | April 9, 2003                                                                                                                                           |

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division or reissue thereof and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.

The undersigned agree(s) to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States patent to the Assignee.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patents of the United States resulting from said application or any division or divisions or continuing or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

05 P 13 P 10 TX (1 5 1 1 1 1 2)

The undersigned hereby grant(s) the firm of WENDEROTH, LIND & PONACK, L.L.P., 2033 K Street, N.W., Suite 500, Washington, DC 20006, the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent Office for recordation of this document.

| In      | witness whereof, execute   | d by the undersigned or | n the date(s) opposite the undersigned na                                                   | ıme(s).                |
|---------|----------------------------|-------------------------|---------------------------------------------------------------------------------------------|------------------------|
| Date    | April 9, 2003              | , Name of Inventor      | Torkhilo Sotyuchi                                                                           | (Toshihiko Setoguchi)  |
| Date    | April 9, 2003              | , Name of Inventor      | Muchi Fujupa                                                                                | (Yuichi Fujioka)       |
| Date    | April 9, 2003              | , Name of Inventor      | Yoshikiko Suchiyana                                                                         | (Yoshihiko Tsuchiyama) |
| Date    | April 9, 2003              | , Name of Inventor      | akinori Jasulada                                                                            | (Akinori Yasutake)     |
| Date    | April 9, 2003              | , Name of Inventor      | Matsuhei Noda                                                                               | (Matsuhei Noda)        |
| Date    | April 9, 2003              | , Name of Inventor      | Northisa, Kobayashi                                                                         | (Norihisa Kobayashi)   |
| Date    | April 9, 2003              | , Name of Inventor      | Provide milid                                                                               | (Ryoichi Nishida)      |
| Date    | April 9, 2003              | , Name of Inventor      | Hiloshi Noshino                                                                             | (Hitoshi Nishino)      |
| Date    | April 9, 2003              | , Name of Inventor      | Kateuhide Okimi                                                                             | (Katsuhide Okimi)      |
| Date .  | April 9, 2003              | , Name of Inventor      | Akihow Jacking                                                                              | 🏡 (Akihiro Hachiya)    |
|         | hisally came the above-nam | } SS<br>day of          | <b>WLEDGMENT</b>                                                                            | , before me            |
|         | executed the same of his   |                         | uted the foregoing assignment, who did a per the purposes therein set forth.  Official Sign |                        |
|         | he above application may   | be more particularly ic | Official Ti                                                                                 | tle                    |
| U.S. A  | Application Serial No      |                         | Filing Date                                                                                 |                        |
| Appli   | cant Reference No          |                         | Atty. Docket No                                                                             |                        |
| Title o | of Invention               |                         |                                                                                             |                        |
|         |                            |                         |                                                                                             |                        |

**RECORDED: 02/11/2004**