

PATENT ASSIGNMENT

Electronic Version v1.1
 Stylesheet Version v1.1

| SUBMISSION TYPE: | NEW ASSIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------------|--|------------------------|----------------------------------|-------------------|------------|-----------------------|------------|---------------------|------------|----------------|------------|-----------------|------------|------------|------------|----------------|------------|---------------|------------|----------------|------------|------------|------------|------------------|------------|------------------|------------|------------------|------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONVEYING PARTY DATA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Name</th> <th style="width: 30%;">Execution Date</th> </tr> </thead> <tbody> <tr><td>Hiroshi HARADA</td><td>09/20/2011</td></tr> <tr><td>Tadaharu YOKOKAWA</td><td>09/20/2011</td></tr> <tr><td>Yutaka KOIZUMI</td><td>09/20/2011</td></tr> <tr><td>Toshiharu KOBAYASHI</td><td>09/20/2011</td></tr> <tr><td>Masao SAKAMOTO</td><td>09/20/2011</td></tr> <tr><td>Kyoko KAWAGISHI</td><td>09/20/2011</td></tr> <tr><td>Ikuo OKADA</td><td>09/20/2011</td></tr> <tr><td>Hidataka OGUMA</td><td>09/20/2011</td></tr> <tr><td>Taiji TORIGOE</td><td>09/20/2011</td></tr> <tr><td>Masaki TANEIKE</td><td>09/20/2011</td></tr> <tr><td>Eisaku ITO</td><td>09/20/2011</td></tr> <tr><td>Junichiro MASADA</td><td>09/20/2011</td></tr> <tr><td>Keizo TSUKAGOSHI</td><td>09/20/2011</td></tr> <tr><td>Hidemichi KOYABU</td><td>09/20/2011</td></tr> </tbody> </table> | | Name | Execution Date | Hiroshi HARADA | 09/20/2011 | Tadaharu YOKOKAWA | 09/20/2011 | Yutaka KOIZUMI | 09/20/2011 | Toshiharu KOBAYASHI | 09/20/2011 | Masao SAKAMOTO | 09/20/2011 | Kyoko KAWAGISHI | 09/20/2011 | Ikuo OKADA | 09/20/2011 | Hidataka OGUMA | 09/20/2011 | Taiji TORIGOE | 09/20/2011 | Masaki TANEIKE | 09/20/2011 | Eisaku ITO | 09/20/2011 | Junichiro MASADA | 09/20/2011 | Keizo TSUKAGOSHI | 09/20/2011 | Hidemichi KOYABU | 09/20/2011 |
| Name | Execution Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hiroshi HARADA | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tadaharu YOKOKAWA | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Yutaka KOIZUMI | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toshiharu KOBAYASHI | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Masao SAKAMOTO | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kyoko KAWAGISHI | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ikuo OKADA | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hidataka OGUMA | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Taiji TORIGOE | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Masaki TANEIKE | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eisaku ITO | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Junichiro MASADA | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Keizo TSUKAGOSHI | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hidemichi KOYABU | 09/20/2011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RECEIVING PARTY DATA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 20%;">Name:</td><td>NATIONAL INSTITUTE FOR MATERIALS SCIENCE</td></tr> <tr><td>Street Address:</td><td>2-1, Sengen 1-chome, Tsukuba-shi</td></tr> <tr><td>City:</td><td>Ibaraki</td></tr> <tr><td>State/Country:</td><td>JAPAN</td></tr> </table> | | Name: | NATIONAL INSTITUTE FOR MATERIALS SCIENCE | Street Address: | 2-1, Sengen 1-chome, Tsukuba-shi | City: | Ibaraki | State/Country: | JAPAN | | | | | | | | | | | | | | | | | | | | | | |
| Name: | NATIONAL INSTITUTE FOR MATERIALS SCIENCE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Street Address: | 2-1, Sengen 1-chome, Tsukuba-shi | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| City: | Ibaraki | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| State/Country: | JAPAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 20%;">Name:</td><td>mitsubishi heavy industries, ltd.</td></tr> <tr><td>Street Address:</td><td>16-5, Konan 2-chome, Minato-ku</td></tr> <tr><td>City:</td><td>Tokyo</td></tr> <tr><td>State/Country:</td><td>JAPAN</td></tr> </table> | | Name: | mitsubishi heavy industries, ltd. | Street Address: | 16-5, Konan 2-chome, Minato-ku | City: | Tokyo | State/Country: | JAPAN | | | | | | | | | | | | | | | | | | | | | | |
| Name: | mitsubishi heavy industries, ltd. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| City: | Tokyo | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| State/Country: | JAPAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROPERTY NUMBERS Total: 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Property Type</th> <th style="width: 70%;">Number</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> | | Property Type | Number | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Property Type | Number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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OP \$40.00 13144748

501676160

PATENT
REEL: 026990 FRAME: 0721

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| Application Number: | 13144748 |
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CORRESPONDENCE DATA

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Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.

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| | |
|-------------------------|------------|
| ATTORNEY DOCKET NUMBER: | 2011-1051A |
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| NAME OF SUBMITTER: | Andrea Pantleo |
|--------------------|----------------|

Total Attachments: 3

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ASSIGNMENT

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned

Insert Name(s)
of Inventor(s) Hiroshi HARADA
Tadaharu YOKOKAWA
Yutaka KOIZUMI
Toshiharu KOBAYASHI
Masao SAKAMOTO
Kyoko KAWAGISHI
Ikuo OKADA
Hidataka OGUMA
Taiji TORIGOE
Masaki TANEIKE
Eisaku ITO
Junichiro MASADA
Keizo TSUKAGOSHI
Hidemichi KOYABU

Insert Name(s)
of Assignee(s) the undersigned hereby sell(s) and assign(s) to
of 1.) NATIONAL INSTITUTE FOR MATERIALS SCIENCE

Address 2-1, Sengen 1-chome, Tsukuba-shi, Ibaraki, JAPAN, and
2.) MITSUBISHI HEAVY INDUSTRIES, LTD.
16-5, Konan 2-chome, Minato-ku, Tokyo, JAPAN

Title of
Invention (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
NI-BASED SINGLE CRYSTAL SUPERALLOY

Date of
Signing of
Application for which an application for patent in the United States has been executed by the undersigned
on September 20, 2011

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.

The undersigned hereby grant(s) the firm of WENDEROTH, LIND & PONACK, L.L.P., 1030 15th Street, N.W., Suite 400 East, Washington, D.C. 20005-1503, 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 recordal of this document.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date September 20, 2011

Hiroshi HARADA
Hiroshi HARADA

Date September 20, 2011

Tadaharu YOKOKAWA
Tadaharu YOKOKAWA

Date September 20, 2011

Yutaka KOIZUMI
Yutaka KOIZUMI

Date September 20, 2011

Toshiharu KOBAYASHI
Toshiharu KOBAYASHI

Date September 20, 2011

Masao SAKAMOTO
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Ikuo OKADA
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Date September 20, 2011

Taiji TORIGOE
Taiji TORIGOE

Date September 20, 2011

Masaki TANEIKE
Masaki TANEIKE

Date September 20, 2011

Eisaku ITO
Eisaku ITO

Date September 20, 2011

Junichiro MASADA
Junichiro MASADA

Date September 20, 2011

Keizo TSUKAGOSHI
Keizo TSUKAGOSHI

Date September 20, 2011

Hidemichi Koyabu
Hidemichi KOYABU

(This assignment should preferably be acknowledged before a United States Consul. If not, then the execution by the Inventor(s) should be witnessed by at least two witnesses who sign here.)

Witness _____

Witness _____

ACKNOWLEDGMENT

_____ } ss

This _____ day of _____, 20____, before me personally came the above-named _____ to me personally known as the individual(s) who executed the foregoing assignment, who did acknowledge to me that he (they) executed the same of his (their) own free will for the purposes therein set forth.

SEAL

Official Signature

Official Title

The above application may be more particularly identified as follows:

U.S. Application Serial No.: _____

Filing Date: July 15, 2011

Applicant Reference Number: 10-F-001PCT/US0

Attorney Docket No.: 2011_1051A