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| 1. Name of conveying party(ies): | 2. Name and address of receiving party(ies): |
| Takanori MAEDA | |
| Atsushi ONOE | Name: PIONEER CORPORATION |
| | Internal Address: |
| | Street Address: 4-1, Meguro 1-chome, Meguro-ku |
| Additional name/s of conveying party/ies attached? | |
| | |
| 3. Nature of conveyance: | City: Tokyo |
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| Execution Date: October 28, 2003 and November 5, | Additional name/s & address/es attached? Tyes No |
| 2003 | |
| | |
| 4. Application number(s) or patent number(s): | |
| If this document is being filed together with a new application, the execution | 3, 2003 Find 110 veniou 5, |
| 10 BOM | 2003 |
| A. Patent Application No(s). 1712997 | |
| (1) To be assigned | B. Patent No(s). |
| (1) To be assigned (2) | (1) |
| (3) | (2) (3) |
| Additional numbers att | · · · |
| 5. Name and address of party to whom correspondence | 6. Total number of applications & patents involved: |
| concerning document should be mailed: | o. Total number of applications & patents involved: |
| | 7. Total fee (37 CFR 3.41) \$ 40.00 |
| Name: Arthur R. Crawford | Enclosed |
| | Authorized to be charged to deposit account #14-1140 |
| Internal Address: | |
| | 8. The Commissioner is hereby authorized to charge any |
| Street Address: Nixon & Vanderhye P.C. | <u>deficiency</u> in the fee(s) filed, or asserted to be filed, or which |
| 1100 North Glebe Road | should have been filed herewith (or with any paper thereafter |
| 8 th Floor | filed in this application by this firm) to our Account No. |
| City: Arlington State: VA Zip: 22201 | 14-1140. |
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| 9. Statements and signature. | |
| To the best of my knowledge and belief, the foregoing informat | ion is true and correct and any attached copy is a true copy |
| of the original document. | Ω_{A} |
| Arthur R. Crawford | V 1 17 2000 |
| Name of Person Signing Signal | November 17, 2003 |
| Reg. No. 25,327 | Ture Date |
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| n2 50-8021 An no no | |

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PATENT 792293

REEL: 014706 FRAME: 0471

ASSIGNMENT OF PATENT APPLICATION

(Inventors)

Takanori MAEDA and Atsushi ONOE of Saitama, Japan

In consideration of the sum of one dollar (\$1.00) and other good and valuable considerations paid to each of the undersigned, the undersigned agree(s) to assign, and hereby does assign, transfer and set over to

(Assignee) (Address) PIONEER CORPORATION

(of 4-1, Meguro 1-chome, Meguro-ku, Tokyo, Japan

(Other Countries) (Title) (hereinafter designated as the Assignee) the undersigned's entire right, title and interest for the United States, its territories, dependencies and possessions, and for the country of

(in the invention, and all application for patent and any Letters Patent which may be granted therefore, known as

(Case No)

INFORMATION RECORDING / READING HEAD

for which the undersigned has (have) executed on even date herewith an application for patent in the United States of America or, if not on even date, then has executed (on or has already filed in

(U.S. appln. Serial No. , filed on).

The undersigned acknowledges an obligation of assignment of this invention to said assignee at the time the invention was made.

The undersigned agree(s) to execute all papers and documents necessary in connection with the application or any interference which may be declared and any continuing or divisional applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient and further to 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 Patent of the United States resulting from said application or any division or divisions or continuing 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 NIXON & VANDERHYE P.C. 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. It is understood and agreed that ASSIGNEE'S attorneys Nixon & Vanderhye P.C. have represented only ASSIGNEE and will continue to represent only ASSIGNEE with respect to this invention.

PATENT REEL: 014706 FRAME: 0472

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

| Date 28/10/2003 | Signature of inventor | (Tukanori /hasda |
|-----------------|-------------------------|-------------------|
| Date 5/11/2003 | _ Signature of inventor | (Atauchi Con |
| Date | _ Signature of inventor | Atsushi ONOE |
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | Signature of inventor | |
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | _ Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | _ Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Date | Signature of inventor | (|
| Witnessed by: | | Date |
| Witneseed by: | | Date |
| Witnessed by: | | Date |

PATENT REEL: 014706 FRAME: 0473