| Fe ^{-fm} PTO-1595 RECOI (Rev. 03/01) OMB No. 0651-0027 (exp. 5/31/2002) | U.S. Patent and Trademark Office | | |
|--|---|--|--|
| OMB No. 0651-0027 (exp. 5/31/2002) 7-31-03 Tab settings 10252 | | | |
| To the Honorable Commissioner of Patents and Trademarks: F | Please Record the attached original documents or copy thereof. | | |
| 1. Name of conveying party(ies): Ye Tian Norval J. Wiemken Xinshuang Nan Ronald D. Shinogle Lifeng Wang Chetan J. Desai Jianyuan Yang | 2. Name and address of receiving party(ies) Name: Caterpillar, Inc. Patent Department Internal Address: | | |
| Additional name of conveying party(ies) attached? ☐ Yes ☒ No | | | |
| 3. Nature of conveyance: ☐ Assignment ☐ Merger ☐ Security Agreement ☐ Change of Name ☐ Other Execution Date: 4-2-03 | Street Address: 100 NE Adams Street City. Peoria State. IL Zip. 61629 Additional Name(s) & address(es) attached? ☐ Yes ☒ 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) 10/631251 Additional numbers attached | B. Patent No.(s) | | |
| Name and address of party to whom correspondence concerning this document should be mailed: | 6. Total number of applications and patents involved: 1 | | |
| Name: Michael B. McNeil | 7. Total fee (37 CFR 3.41) \$ 40 | | |
| Internal Address: Liell & McNeil Attorneys PC | ☑ Enclosed ☐ Authorized to be charged to deposit account | | |
| Street Address: P.O. Box 2417 | Deposit account number: 500226 | | |
| City: Bloomington State: IN Zip: 47402 | (Attach duplicate copy of this page if paying by deposit account) | | |
| DO NOT USE THIS SPACE | | | |
| 9. Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Michael B. McNeil Name of Person Signing Signature Date | | | |

<u>00-</u>197

WHEREAS, Chetan J. Desai, residing at Bloomington, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Xinshuang Nan, Ronald D. Shinogle, Lifeng Wang, Ye Tian and Jianyuan Yang a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

for which ASSIGNOR is about to file an international application and/or make application for Letters Patent in the United States of America, such invention being described and identified by said application having an attached International Application Request and/or an attached Declaration and Power of Attorney executed by ASSIGNOR on ____3 / 26 / 2003 ; and

WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

Chotan Desai

CHETAN J. DESAI

IN WITNESS OF the execution hereof by CHETAN J. DESAI we have hereunto set our hands.

Chotan C. Mass 03/26/03

Witness (1)

Address:

4802 N. Gera CT.

PECRIA TI (51/6/4)

Date

3/26/03

Date

Mitness (2)

Date

Address:

1608 W. Timberdair Dr.

Date

Date

Date

Date

Date

1608 W. Timberdair Dr.

Date

Date

Date

Date

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument.

WHEREAS, Ronald D. Shinogle, residing at Peoria, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Xinshuang Nan, Ye Tian, Lifeng Wang, Chetan J. Desai and Jianyuan Yang a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

for which ASSIGNOR is about to file an international application and/or make application for Letters Patent in the United States of America, such invention being described and identified by said application having an attached International Application Request and/or an attached Declaration and Power of Attorney executed by ASSIGNOR on 3-27-03; and

WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument.

| House MSliver | 3-27-03 |
|---|--|
| RONALD D. SHINOGLE | Date |
| IN WITNESS OF the execution hereof by RON | NALD D. SHINOGLE we have hereunto set our hands. |
| Willing Rodin 3-27-03 | & and C. Man 3/27/03 |
| Witness (1) Address: 805 Holland Rd | Witness (2) Date Address: 401 W. GROVE ST. |
| Metamora ZL 61548 | PONTIAC, 16 61764 |
| | |

WHEREAS, Jianyuan Yang, residing at Bloomington, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Xinshuang Nan, Ronald D. Shinogle, Lifeng Wang, Chetan J. Desai and Ye Tian a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

for which ASSIGNOR is about to file an international application and/or make application for Letters Patent in the United States of America, such invention being described and identified by said application having an attached International Application Request and/or an attached Declaration and Power of Attorney executed by ASSIGNOR on 4-7-03; and WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria,

WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

| franguan Jang | April 7, 2003 | |
|--|-----------------------------------|--------------------|
| JIANYUAN YANG | Date | - |
| IN WITNESS OF the execution hereof by JIA | NYUAN YANG we have beren | unto set our hands |
| Mules 11. No. 4/1/03 | ////////// | 4/7/03 |
| Witness (1) Address: 5/0 Wrdgcupper Terr. | Withess (2) Address: 1504 Kenneth | Date Dr |
| Motamora IL 61598 | Bloomington IL | 61704 |
| | | |

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument

WHEREAS, Lifeng Wang, residing at Normal, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Xinshuang Nan, Ronald D. Shinogle, Ye Tian, Chetan J. Desai and Jianyuan Yang a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

| for which ASSIGNOR is about to file an international application and/or make application for Letters |
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| ··· |
| Patent in the United States of America, such invention being described and identified by said |
| application having an attached International Application Request and/or an attached Declaration and |
| Power of Attorney executed by ASSIGNOR on 4-2-03; and |
| WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, |
| State of Illinois United States of America, hereinafter referred to as ASSIGNEE, is desirous of |

State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument.

Liberytic C4/31/03

LIFENG WANG

Date

IN WITNESS OF the execution hereof by LIFENG WANG we have hereunto set our hands.

Witness (1)

Address: 1/6 Rossingham p. Address: 70/. 5. West 51. Apt . C3

Apt. 4-3

Pontiac. 2L 61764

<u>ASSIGNMENT</u>

WHEREAS, Ye Tian, residing at Bloomington, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Xinshuang Nan, Ronald D. Shinogle, Lifeng Wang, Chetan J. Desai and Jianyuan Yang a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

for which ASSIGNOR is about to file an international application and/or make application for Letters Patent in the United States of America, such invention being described and identified by said application having an attached International Application Request and/or an attached Declaration and Power of Attorney executed by ASSIGNOR on $\frac{4-2-03}{3}$; and

WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument.

YE TIAN

Date

IN WITNESS OF the execution hereof by YE TIAN we have hereunto set our hands.

This July

Witness (1)

Address: 70 | 5. West 51 Apr. 43 Address: 17/4 Rockingham Br.

Pontiau, 1L 61764

Apr. Apr. Apr. 4

Mormal, IL 61764

WHEREAS, Xinshuang Nan, residing at Bloomington, Illinois, hereinafter referred to ASSIGNOR has invented together with Norval J. Wiemken, Ye Tian, Ronald D. Shinogle, Lifeng Wang, Chetan J. Desai and Jianyuan Yang a new and useful

| VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME |
|---|
| for which ASSIGNOR is about to file an international application and/or make application for Letter |
| Patent in the United States of America, such invention being described and identified by said |
| application having an attached International Application Request and/or an attached Declaration and |
| Power of Attorney executed by ASSIGNOR on $4-9-03$; and |
| WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, |
| State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of |
| acquiring the entire right, title and interest in and to said invention and any Letters Patent granted |
| thereon by the United States of America and any foreign country; |
| NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good |
| and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby |
| acknowledged by ASSIGNOR; |
| 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right |
| title and interest in and to said invention, any application therefor, and any Letters Patent granted |
| thereon by the United States of America and any foreign country, including any continuing |
| application, reissue or extension thereof, together with the right to file applications and obtain patent |
| for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so. |
| 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to |
| ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any |
| application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing |

- proper protection for said invention in the United States of America and any foreign country.

 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

| IN LESTIMONY WHEREOF, ASSIGNOR has executed this institution. | | | | |
|---|--------------------------------|-------------|--|--|
| Non Trishway | Apr. 8, 2003 | | | |
| XINSHUANG NAN V | Date | | | |
| IN WITNESS OF the execution hereof by XINS | SHUANG NAN we have hereunto se | t our hands | | |
| VICTOR I. YACOUB V. I. 4 04-08-03 Witness (1) Date | MICHAEL R. HUFFMAN | 118103 | | |
| Witness (1) Date | Witness (2) Da | ite | | |
| Address: 303 S. JEFFERSON St. | Address: | | | |
| FLANAGAN IL 61740 | 802C DEEZFIELD RD. | | | |
| IJ, S.A | PONTIACY IL. 61764 | USA | | |
| | , | | | |
| | | | | |

00-197

PATENT REEL: 014361 FRAME: 0165

WHEREAS, Norval J. Wiemken, residing at Dwight, Illinois, hereinafter referred to ASSIGNOR has invented together with Ye Tian, Xinshuang Nan, Ronald D. Shinogle, Lifeng Wang, Chetan J. Desai and Jianyuan Yang a new and useful

VARIABLE CONTROL ORIFICE MEMBER AND FUEL INJECTOR USING SAME

for which ASSIGNOR is about to file an international application and/or make application for Letters Patent in the United States of America, such invention being described and identified by said application having an attached International Application Request and/or an attached Declaration and Power of Attorney executed by ASSIGNOR on ______; and

WHEREAS, Caterpillar Inc., a Delaware corporation having a place of business at Peoria, State of Illinois, United States of America, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to said invention and any Letters Patent granted thereon by the United States of America and any foreign country;

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) and for other good and valuable consideration received by ASSIGNOR from ASSIGNEE, the receipt of which is hereby acknowledged by ASSIGNOR;

- 1. ASSIGNOR hereby sells, assigns, transfers and conveys unto ASSIGNEE the entire right, title and interest in and to said invention, any application therefor, and any Letters Patent granted thereon by the United States of America and any foreign country, including any continuing application, reissue or extension thereof, together with the right to file applications and obtain patents for said invention in any foreign country, and covenant that ASSIGNOR has the full right to do so.
- 2. At the request and expense of ASSIGNEE, ASSIGNOR agrees to communicate to ASSIGNEE any facts known respecting said invention, to execute all papers necessary to file any application on said invention necessary or desirable to aid ASSIGNEE in obtaining and enforcing proper protection for said invention in the United States of America and any foreign country.
- 3. ASSIGNOR hereby authorizes and requests the COMMISSIONER OF PATENTS AND TRADEMARKS to issue the United States Letters Patent on said invention, when granted, to Caterpillar Inc.
- 4. This assignment shall inure to the benefit of ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon ASSIGNOR, ASSIGNOR'S heirs and legal representatives.

IN TESTIMONY WHEREOF, ASSIGNOR has executed this instrument.

> PATENT REEL: 014361 FRAME: 0166

RECORDED: 07/31/2003