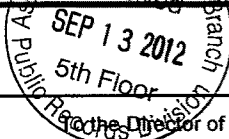


09/13/2012

Form **PTO-1595** (Rev. 03-11)
OMB No. 0651-0027 (exp. 04/30/2015)



U.S. DEPARTMENT OF COMMERCE
United States Patent and Trademark Office



103649220

ET

PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)

Douglas Harwood

Additional name(s) of conveying party(ies) attached? ☐ Yes ☐ No**3. Nature of conveyance/Execution Date(s):**Execution Date(s) August 31st, 2012

- ☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Joint Research Agreement
☐ Government Interest Assignment
☐ Executive Order 9424, Confirmatory License
☐ Other _____

2. Name and address of receiving party(ies)Name: Vertical Optimization, LLC

Internal Address: _____

Street Address: P.O. Box 7251City: Silver SpringState: MDCountry: USAZip: 20907Additional name(s) & address(es) attached? ☐ Yes ☒ No**4. Application or patent number(s):**☐ This document is being filed together with a new application.

A. Patent Application No.(s)

B. Patent No.(s)

US Patent #: 6685474

US Patent #: 6861049

Additional numbers attached? ☐ Yes ☒ No**5. Name and address to whom correspondence concerning document should be mailed:**Name: Emeka NwankwoInternal Address: Vertical Optimization, LLCStreet Address: P.O. Box 7251City: Silver SpringState: MD Zip: 20907Phone Number: + 1 202 370 6165

Docket Number: _____

Email Address: emeka@vo-llc.com**6. Total number of applications and patents involved: 2****7. Total fee (37 CFR 1.21(h) & 3.41)** \$80.00

- ☐ Authorized to be charged to deposit account
☒ Enclosed
☐ None required (government interest not affecting title)

8. Payment Information

Deposit Account Number _____

Authorized User Name _____

9. Signature:

Signature

Douglas Harwood

Name of Person Signing

09/13/2012 KNGHYEN1 00000015 6685474

01 FC:APP1 Sept. 7, 2012 09:00 OP

Date

Total number of pages including cover sheet, attachments, and documents:

12

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:
 Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

PATENT
REEL: 029000 FRAME: 0087

ASSIGNMENT OF US PATENT

“Aqueous slurries useful for cleaning the tongue and throat”

(USPTO Patent: 6,861,049)

By

Douglas Harwood (Inventor),
an individual resident at
5614 Cape George Road,
Port Townsend, WA 98368

To

Vertical Optimization, LLC (Assignee)
A limited liability company
With principal place of business
817 Silver Spring Avenue, Suite 200
Silver Spring, MD 20910

THIS ASSIGNMENT dated 31st of August 2012 is made BETWEEN:

- (1) **Mr. Douglas Harwood**, of 5614 Cape George Road, Port Townsend, WA 98368, (the Inventor); and
- (2) **Vertical Optimization, LLC**, a company registered in the State of Delaware, whose principal office is at 817 Silver Spring Avenue, Suite 200, Silver Spring, MD 20910 (the Assignee).

BACKGROUND

The Inventor is the proprietor of US patent number 6,861,049, entitled "Aqueous slurries useful for cleaning the tongue and throat" (the Patent), and has agreed to assign the Patent to the Assignee on the terms set out in this Assignment.

1. ASSIGNMENT

- 1.1 In consideration of the sum of \$10.00 (ten US dollars), receipt of which The Inventor acknowledges, The Inventor now assigns to the Assignee the full and exclusive benefit of the Patent, including the right to recover and take all such proceedings as may be necessary for the recovery of damages or other remedies in respect of all infringements of the Patent, whether committed before or after the date of this Assignment.
- 1.2 The Assignee will provide The Inventor with such information that as The Inventor may reasonably request from time to time to demonstrate that the Assignee is exploiting or is taking reasonable steps towards exploiting the Patent. If the Assignee does not demonstrate that it is exploiting the Patent or is taking reasonable steps towards exploiting it within a period of five (5) years from the date of this assignment, the Assignee will, if requested to do so by The Inventor, reassign the Patent to The Inventor. The Assignee will notify The Inventor if the Assignee decides not to proceed with the exploitation of the Patent and will, if requested to do so by The Inventor, reassign the Patent to The Inventor.

2. FURTHER ASSURANCE

The Inventor will, at the request and cost of the Assignee, execute or procure the execution of such documents and do or procure the doing of such acts and things as the Assignee may reasonably require to enable the Assignee, or its nominee, to enjoy the full benefit of the rights now assigned to it.

3. WARRANTIES AND LIABILITY

- 3.1 The assignment in clause 1.1 is made with full title guarantee. The Inventor warrants to the Assignee that, in relation to the assignment in clause 1.1:
 - 3.1.1 The Inventor has the right to dispose of the Patent and that The Inventor will, at its own cost, do all that it reasonably can to give the title that it purports to give; and

52

- 3.1.2 that the Patent is free from all charges and encumbrances and rights of any third party (except those that The Inventor is unaware or could not reasonably be aware of).
- 3.2 Each of the parties acknowledges that, in entering into this Agreement, it has not relied on any warranty, representation or undertaking except those expressly set out in this Agreement and each party waives any claim for breach of any representation (unless made fraudulently) which is not specifically contained in this Agreement as a warranty.
- 3.3 Subject to the warranty in clause 3.1, The Inventor does not give any warranty, representation or undertaking:
- 3.3.1 as to the efficacy or usefulness of the Patent; or
 - 3.3.2 that the Patent is or will be valid or subsisting; or
 - 3.3.3 that the use of the Patent, the manufacture, sale or use of any product that is within any claim of the Patent will not infringe any intellectual property or other rights of any other person; or
 - 3.3.4 that any information communicated by The Inventor to the Assignee under or in connection with the Patent will produce products of satisfactory quality or fit for the purpose for which the Assignee intended; or
 - 3.3.5 as imposing any obligation on The Inventor to bring or prosecute actions or proceedings against third parties for infringement or to defend any action or proceedings for revocation of the Patent; or
 - 3.3.6 as imposing any liability on The Inventor in the event that any third party supplies products within any claim of the Patent to customers located in the territory of the Patent.
- 3.4 The Assignee is responsible for the design, development and construction of products under the Patent and The Inventor has no responsibility or liability in that respect.
- 3.5 Except under the warranty in clause 3.1 and the indemnity in clause 3.6, and subject to clause 3.9, Inventor does not accept any responsibility for any use which may be made by Assignee of the Patent, nor for any reliance which may be placed by Assignee on the Patent, nor for advice or information given in connection with the Patent.
- 3.6 The Assignee will indemnify The Inventor and keep him fully and effectively indemnified, against each and every claim made against any of the Indemnified Parties as a result of the Assignee's manufacture, use, sale of or other dealing in any product under the Patent, provided that the Indemnified Party must:
- 3.6.1 promptly notify the Assignee of details of the claim;

- 3.6.2 not make any admission in relation to the claim;
- 3.6.3 allow the Assignee to have the conduct of the defence or settlement of the claim; and
- 3.6.4 give the Assignee all reasonable assistance (at the Assignee's expense) in dealing with the claim.

The indemnity in this clause will not apply to the extent that the claim arises as a result of the Indemnified Party's negligence, the deliberate breach of any agreement between The Inventor and the Assignee, or any breach of confidence.

- 3.7 Subject to clause 3.9, and except under the indemnity in clause 3.6, the liability of either party to the other for any breach of this Assignment, any negligence or arising in any other way out of the subject matter of this Assignment, will not extend to any indirect damages or losses, or any loss of profits, loss of revenue, loss of data, loss of contracts or opportunity, whether direct or indirect, even if the party bringing the claim has advised the other of the possibility of those losses, or if they were within the other party's contemplation.
- 3.8 Subject to clause 3.9, and except under the indemnity in clause 3.6, the aggregate liability of each party to the other for all and any breaches of this Assignment, any negligence or arising in any other way out of the subject matter of this Assignment, will not exceed in total \$1500.
- 3.9 Nothing in this Assignment limits or excludes either party's liability for:
 - 3.9.1 death or personal injury;
 - 3.9.2 any fraud or for any sort of liability that, by law, cannot be limited or excluded; or
 - 3.9.3 any loss or damage caused by a deliberate breach of this Assignment or a breach of confidence.
- 3.10 The express undertakings and warranties given by the parties in this Assignment are in lieu of all other warranties, conditions, terms, undertakings and obligations, whether express or implied by statute, common law, custom, trade usage, course of dealing or in any other way. All of these are excluded to the fullest extent permitted by law.

4. ADDITIONAL COMPENSATION

In the event that the Assignee successfully commercializes a product based on the patent within the territory of the patent, Assignee shall pay Inventor 5% of the profits from the sale of such products.

This profit share applies to direct product sales as well as licensing fees that may accrue to the Assignee as a result of the use of the patent in the development of a commercial product. Assignee shall notify Inventor in writing within 60 days of the first instance of the sale of a product or realization of licensing revenue based on the patent. This profit share shall apply for the validity of the patent or the duration of the assignment of the patent to the Assignee, whichever expires first.

5. DISPUTE RESOLUTION & GOVERNING LAW

Inventor and Assignee enter this agreement in good faith. Inventor and Assignee agree to work amicably to resolve any misunderstandings or disputes.

In the event that Inventor and Assignee cannot amicably resolve their differences, any controversy or claim arising out of or relating to this assignment or breach thereof shall be settled by arbitration in accordance with the BBB (Better Business Bureau of Greater Washington DC and Pennsylvania) Rules of Binding Arbitration for Disputes Subject to Pre-Dispute Binding Arbitration Clauses, and the judgement upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

Disputes alleging criminal or statutory violations are precluded from arbitration proceedings.

Decisions reached by the arbitrator(s) will be based on standards of fairness and/or application of the law. There will be no cost to Assignee or Inventor for the use of this arbitration service as long as Assignee remains a BBB Accredited Business.

In the event that neither Inventor nor Assignee is a BBB Accredited Business at the time of arbitration, the cost of arbitration shall be shared equally by both parties.

This Assignment is governed by, and is to be construed in accordance with, the laws of the State of Delaware. The laws of the State of Delaware will have exclusive jurisdiction to deal with any dispute which may arise out of or in connection with this Assignment.

5

IN WITNESS whereof Inventor has executed this Assignment as a Deed the day and year first above written.

Signed by
Mr. Douglas B. Harwood (Inventor)

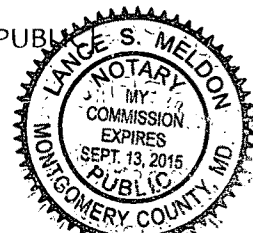
dharwood
9/4/2012

Signed for
Vertical Optimization, LLC (Assignee)

[Signature] 09/08/12
Dr. Emeka Nwankwo
Chief Executive Officer

In the presence of: [NOTARY PUBLIC]

In the presence of: [NOTARY PUBLIC]



09-08-2012

ASSIGNMENT OF US PATENT

“Aqueous slurries useful for cleaning teeth and
methods related thereto”
(USPTO Patent: 6,685,474)

By
Douglas Harwood (Inventor),
an individual resident at
5614 Cape George Road,
Port Townsend, WA 98368

To
Vertical Optimization, LLC (Assignee)
A limited liability company
With principal place of business
817 Silver Spring Avenue, Suite 200
Silver Spring, MD 20910

THIS ASSIGNMENT dated 21st of August 2012 is made **BETWEEN:**

- (1) **Mr. Douglas Harwood**, of 5614 Cape George Road, Port Townsend, WA 98368, (the Inventor); and
- (2) **Vertical Optimization, LLC**, a company registered in the State of Delaware, whose principal office is at 817 Silver Spring Avenue, Suite 200, Silver Spring, MD 20910 (the Assignee).

BACKGROUND

The Inventor is the proprietor of US patent number 6,685,474, entitled "Aqueous slurries useful for cleaning teeth and methods related thereto" (the Patent), and has agreed to assign the Patent to the Assignee on the terms set out in this Assignment.

1. ASSIGNMENT

- 1.1 In consideration of the sum of \$10.00 (ten US dollars), receipt of which The Inventor acknowledges, The Inventor now assigns to the Assignee the full and exclusive benefit of the Patent, including the right to recover and take all such proceedings as may be necessary for the recovery of damages or other remedies in respect of all infringements of the Patent, whether committed before or after the date of this Assignment.
- 1.2 The Assignee will provide The Inventor with such information that as The Inventor may reasonably request from time to time to demonstrate that the Assignee is exploiting or is taking reasonable steps towards exploiting the Patent. If the Assignee does not demonstrate that it is exploiting the Patent or is taking reasonable steps towards exploiting it within a period of five (5) years from the date of this assignment, the Assignee will, if requested to do so by The Inventor, reassign the Patent to The Inventor. The Assignee will notify The Inventor if the Assignee decides not to proceed with the exploitation of the Patent and will, if requested to do so by The Inventor, reassign the Patent to The Inventor.

2. FURTHER ASSURANCE

The Inventor will, at the request and cost of the Assignee, execute or procure the execution of such documents and do or procure the doing of such acts and things as the Assignee may reasonably require to enable the Assignee, or its nominee, to enjoy the full benefit of the rights now assigned to it.

3. WARRANTIES AND LIABILITY

- 3.1 The assignment in clause 1.1 is made with full title guarantee. The Inventor warrants to the Assignee that, in relation to the assignment in clause 1.1:
 - 3.1.1 The Inventor has the right to dispose of the Patent and that The Inventor will, at its own cost, do all that it reasonably can to give the title that it purports to give; and



- 3.1.2 that the Patent is free from all charges and encumbrances and rights of any third party (except those that The Inventor is unaware or could not reasonably be aware of).
- 3.2 Each of the parties acknowledges that, in entering into this Agreement, it has not relied on any warranty, representation or undertaking except those expressly set out in this Agreement and each party waives any claim for breach of any representation (unless made fraudulently) which is not specifically contained in this Agreement as a warranty.
- 3.3 Subject to the warranty in clause 3.1, The Inventor does not give any warranty, representation or undertaking:
- 3.3.1 as to the efficacy or usefulness of the Patent; or
 - 3.3.2 that the Patent is or will be valid or subsisting; or
 - 3.3.3 that the use of the Patent, the manufacture, sale or use of any product that is within any claim of the Patent will not infringe any intellectual property or other rights of any other person; or
 - 3.3.4 that any information communicated by The Inventor to the Assignee under or in connection with the Patent will produce products of satisfactory quality or fit for the purpose for which the Assignee intended; or
 - 3.3.5 as imposing any obligation on The Inventor to bring or prosecute actions or proceedings against third parties for infringement or to defend any action or proceedings for revocation of the Patent; or
 - 3.3.6 as imposing any liability on The Inventor in the event that any third party supplies products within any claim of the Patent to customers located in the territory of the Patent.
- 3.4 The Assignee is responsible for the design, development and construction of products under the Patent and The Inventor has no responsibility or liability in that respect.
- 3.5 Except under the warranty in clause 3.1 and the indemnity in clause 3.6, and subject to clause 3.9, Inventor does not accept any responsibility for any use which may be made by Assignee of the Patent, nor for any reliance which may be placed by Assignee on the Patent, nor for advice or information given in connection with the Patent.
- 3.6 The Assignee will indemnify The Inventor and keep him fully and effectively indemnified, against each and every claim made against any of the Indemnified Parties as a result of the Assignee's manufacture, use, sale of or other dealing in any product under the Patent, provided that the Indemnified Party must:
- 3.6.1 promptly notify the Assignee of details of the claim;



- 3.6.2 not make any admission in relation to the claim;
- 3.6.3 allow the Assignee to have the conduct of the defence or settlement of the claim; and
- 3.6.4 give the Assignee all reasonable assistance (at the Assignee's expense) in dealing with the claim.

The indemnity in this clause will not apply to the extent that the claim arises as a result of the Indemnified Party's negligence, the deliberate breach of any agreement between The Inventor and the Assignee, or any breach of confidence.

- 3.7 Subject to clause 3.9, and except under the indemnity in clause 3.6, the liability of either party to the other for any breach of this Assignment, any negligence or arising in any other way out of the subject matter of this Assignment, will not extend to any indirect damages or losses, or any loss of profits, loss of revenue, loss of data, loss of contracts or opportunity, whether direct or indirect, even if the party bringing the claim has advised the other of the possibility of those losses, or if they were within the other party's contemplation.
- 3.8 Subject to clause 3.9, and except under the indemnity in clause 3.6, the aggregate liability of each party to the other for all and any breaches of this Assignment, any negligence or arising in any other way out of the subject matter of this Assignment, will not exceed in total \$1500.
- 3.9 Nothing in this Assignment limits or excludes either party's liability for:
 - 3.9.1 death or personal injury;
 - 3.9.2 any fraud or for any sort of liability that, by law, cannot be limited or excluded; or
 - 3.9.3 any loss or damage caused by a deliberate breach of this Assignment or a breach of confidence.
- 3.10 The express undertakings and warranties given by the parties in this Assignment are in lieu of all other warranties, conditions, terms, undertakings and obligations, whether express or implied by statute, common law, custom, trade usage, course of dealing or in any other way. All of these are excluded to the fullest extent permitted by law.

4. ADDITIONAL COMPENSATION

In the event that the Assignee successfully commercializes a product based on the patent within the territory of the patent, Assignee shall pay Inventor 5% of the profits from the sale of such products.

This profit share applies to direct product sales as well as licensing fees that may accrue to the Assignee as a result of the use of the patent in the development of a commercial product. Assignee shall notify Inventor in writing within 60 days of the first instance of the sale of a product or realization of licensing revenue based on the patent. This profit share shall apply for the validity of the patent or the duration of the assignment of the patent to the Assignee, whichever expires first.



5. DISPUTE RESOLUTION & GOVERNING LAW

Inventor and Assignee enter this agreement in good faith. Inventor and Assignee agree to work amicably to resolve any misunderstandings or disputes.

In the event that Inventor and Assignee cannot amicably resolve their differences, any controversy or claim arising out of or relating to this assignment or breach thereof shall be settled by arbitration in accordance with the BBB (Better Business Bureau of Greater Washington DC and Pennsylvania) Rules of Binding Arbitration for Disputes Subject to Pre-Dispute Binding Arbitration Clauses, and the judgement upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

Disputes alleging criminal or statutory violations are precluded from arbitration proceedings.

Decisions reached by the arbitrator(s) will be based on standards of fairness and/or application of the law. There will be no cost to Assignee or Inventor for the use of this arbitration service as long as Assignee remains a BBB Accredited Business.

In the event that neither Inventor nor Assignee is a BBB Accredited Business at the time of arbitration, the cost of arbitration shall be shared equally by both parties.

This Assignment is governed by, and is to be construed in accordance with, the laws of the State of Delaware. The laws of the State of Delaware will have exclusive jurisdiction to deal with any dispute which may arise out of or in connection with this Assignment.

5

IN WITNESS whereof Inventor has executed this Assignment as a Deed the day and year first above written.

Signed by
Mr. Douglas B. Harwood (Inventor)

dharwood
9/4/2012

In the presence of: [NOTARY PUBLIC]

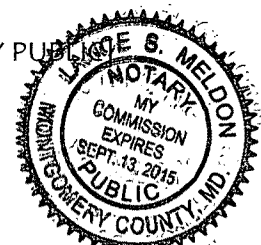
Signed for
Vertical Optimization, LLC (Assignee)

[Signature]

Dr. Emeka Nwankwo
Chief Executive Officer

09/08/12

In the presence of: [NOTARY PUBLIC]



09-08-2012
[Signature]
PATENT



Vertical Optimization, LLC
...Growing Small Ideas Into Smart BusinessesTM

Director of the USPTO
(Assignment Recordation Services)
P.O. Box 1450
Alexandria, VA 22313

September 10th, 2012

Dear Sir:

ASSIGNMENT OF US PATENTS (6685474 & 6861049)

Please find enclosed our application for assignment of the above numbered patents to our firm.
We have enclosed the following:

1. An original copy of the assignment agreement for each patent between our firm and the inventor (Mr. Harwood).
2. A completed and signed copy of USPTO Form 1595 covering the assignment of the two patents.
3. A check in the amount of \$80 (eighty US dollars) covering the cost of assignment of the two patents.

Please let us know if you need additional information to effect these assignments.

Sincerely,

Emeka Nwankwo, D.Eng.Sc.
President

817 Silver Spring Avenue
Suite 200
Silver Spring, MD 20910 USA
Tel: + 1 (202) 370 6165



P.O. Box 7251
Silver Spring, MD 20907 USA
www.vo-llc.com
support@vo-llc.com