

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
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Assignment ID: PAT1173507

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MICHAEL P. FREEMAN	04/25/2017
JINGTONG HOU	04/20/2017
BUMSHIK ROBERT PAK	04/20/2017
KATHLEEN MARIE HARDING	04/20/2017
LINDSEY DELLA WIEMER	04/20/2017
PHILLIP A. PATTEN	04/20/2017
TAKASHI YAMAMOTO	04/20/2017
<b>RECEIVING PARTY DATA</b>	
<b>Company Name:</b>	PIONEER HI-BRED INTERNATIONAL, INC.
<b>Street Address:</b>	7100 NW 62ND AVENUE
<b>Internal Address:</b>	P.O. BOX 1014
<b>City:</b>	JOHNSTON
<b>State/Country:</b>	IOWA
<b>Postal Code:</b>	50131
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	18349428
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	6784209301
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	6784209300
<b>Email:</b>	delees@ballardspahr.com
<b>Correspondent Name:</b>	BALLARD SPAHR LLP
<b>Address Line 1:</b>	999 PEACHTREE STREET
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<b>Address Line 4:</b>	ATLANTA, GEORGIA 30309
<b>ATTORNEY DOCKET NUMBER:</b>	36446.0364U2
<b>NAME OF SUBMITTER:</b>	Sharon DeLee
<b>SIGNATURE:</b>	Sharon DeLee

PATENT

<b>DATE SIGNED:</b>	04/18/2024
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**Total Attachments: 7**

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- source=36446.0364U2 FINAL Executed Assignment#page2.tif
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- source=36446.0364U2 FINAL Executed Assignment#page7.tif

**WORLDWIDE ASSIGNMENT**

I, the undersigned MICHAEL FREEMAN, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP )

- declaration executed on \_\_\_\_\_
  - United States Of America Patent Application Serial No. 15/491,454 , filed on April 19 2017 ,
  - PCT Application Serial No. \_\_\_\_\_ filed on \_\_\_\_\_
- which claim(s) its earliest priority to Application Serial No. \_\_\_\_\_, filed on \_\_\_\_\_.

For valuable consideration, the receipt and adequacy of which is hereby acknowledged, and in fulfillment of my pre-existing obligation of assignment to assignee, which is hereby acknowledged, I hereby:

i. Sell, assign, and transfer unto PIONEER HI-BRED INTERNATIONAL, INC., a corporation organized and existing under the laws of the State of Iowa in the United States of America and having its principal place of business at 7100 NW 62<sup>nd</sup> Avenue, P.O. Box 1014, Johnston, Iowa 50131-1014, herein referred to as the assignee, and to assignee's successors and assigns,

(A) the entire right, title, and interest in and to: (1) the aforesaid application(s) for Letters Patent ("Patent"), (2) any priority rights derived from such aforesaid application(s) for Patent by virtue of the International Convention for the Protection of Industrial Property ("International Convention") and any other treaty or understanding for intellectual property for any and all member countries of the International Convention or other treaty or understanding, including rights in any and all provisional applications, (3) any and all of my inventions, whether joint or sole, disclosed in such aforesaid application(s) for Patent, and/or related to or arising out of such aforesaid application(s) for Patent ("Inventions"), (4) any and all applications for Patent for any such Inventions in any country whatsoever, including all provisional, non-provisional, divisional, renewal, substitute, continuation, continuations-in-part, international and convention applications based in whole or in part upon such aforesaid application(s) for Patent and/or such Inventions, (5) any and all patents for any such Inventions in any country whatsoever, including any and all reexams, reissues and extensions of any patent based in whole or in part upon such aforesaid application(s) for Letters Patent and/or such Inventions; (B) the entire right to (1) file such applications in its name or in my name, (2) file such applications under the aforesaid International Convention or any other treaty or understanding, (3) have said patents granted in its name or mine, the Commissioner of Patents and Trademarks of the United States of America and any counterpart in any other patent office being hereby authorized to issue or transfer all of said patents to said assignee in accordance herewith, and (4) enforce said patents and to sue for and recover profits and damages for any and all infringements thereof, whether past, present or future, to the full end of the term or terms for which said patents may be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned without this assignment;

ii. Agree, whenever assignee asks, without further compensation but at assignee's expense for actual and reasonable costs incurred,

(A) to communicate to said assignee, its successors, assigns, and legal representatives, any facts known to me respecting such inventions or the rights described above, (B) to testify in any legal proceeding respecting such inventions or the rights described above, the location of that testimony to be in the country in which I reside or in the nearest country in which such testimony is legal should my country of residence prohibit such testimony, (C) to execute all applications, papers or instruments necessary or required by said assignee, its successors, assigns and legal representatives, to carry into effect any of the provisions of this instrument, including petitions, specifications, oaths, assignments, disclaimers, and lawful affidavits in form and substance which may be requested by said assignee and (D) generally to do everything possible to aid said assignee, its successors, assigns, and legal representatives to obtain, maintain, defend and enforce patent protection for such inventions and/or secure title to such inventions with assignee;

iii. Represent, warrant and covenant that I have the full right and lawful authority to make this assignment, that such assigned right is not pre-dated by any grant, license, or other right heretofore given by me to any party other than the assignee hereto;

iv. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

v. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

In Witness Whereof, I have executed this Worldwide Assignment on the date indicated by my hand and agree that this Worldwide Assignment shall be effective as of the earliest priority date for the aforesaid application(s) for Letters Patent.

MICHAEL FREEMAN  
Name of Inventor 1

Michael P. Freeman  
Signature of Inventor

4/25/17  
Date

**WORLDWIDE ASSIGNMENT**

I, the undersigned JINGTONG HOU, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP)

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III. Represent, warrant and covenant that I have the full right and lawful authority to make this assignment, that such assigned right is not pre-dated by any grant, license, or other right heretofore given by me to any party other than the assignee hereto;

IV. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

V. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

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JINGTONG HOU

Name of Inventor 3

Signature of Inventor

Date

*[Handwritten Signature]* 4/20/2017

**WORLDWIDE ASSIGNMENT**

I, the undersigned BUMSHIK ROBERT PAK, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP )

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III. Represent, warrant and covenant that I have the full right and lawful authority to make this assignment, that such assigned right is not pre-dated by any grant, license, or other right heretofore given by me to any party other than the assignee hereto;

IV. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

V. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

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BUMSHIK ROBERT PAK

Name of Inventor 4



Signature of Inventor

4/20/2017

Date

**WORLDWIDE ASSIGNMENT**

I, the undersigned KATHLEEN MARIE HARDING, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP )

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IV. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

V. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

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KATHLEEN MARIE HARDING  
Name of Inventor 2

  
Signature of Inventor

4/20/2017  
Date

**WORLDWIDE ASSIGNMENT**

I, the undersigned LINDSEY DELLA WIEMER, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP )

- declaration executed on \_\_\_\_\_
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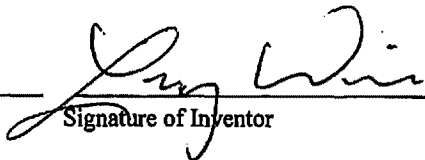
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LINDSEY DELLA WIEMER

Name of Inventor 6

  
Signature of Inventor

4/20/2017  
Date

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ii. Agree, whenever assignee asks, without further compensation but at assignee's expense for actual and reasonable costs incurred,

(A) to communicate to said assignee, its successors, assigns, and legal representatives, any facts known to me respecting such inventions or the rights described above, (B) to testify in any legal proceeding respecting such inventions or the rights described above, the location of that testimony to be in the country in which I reside or in the nearest country in which such testimony is legal should my country of residence prohibit such testimony, (C) to execute all applications, papers or instruments necessary or required by said assignee, its successors, assigns and legal representatives, to carry into effect any of the provisions of this instrument, including petitions, specifications, oaths, assignments, disclaimers, and lawful affidavits in form and substance which may be requested by said assignee and (D) generally to do everything possible to aid said assignee, its successors, assigns, and legal representatives to obtain, maintain, defend and enforce patent protection for such inventions and/or secure title to such inventions with assignee;

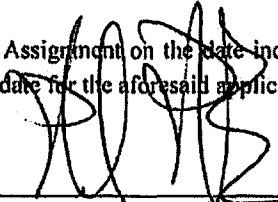
iii. Represent, warrant and covenant that I have the full right and lawful authority to make this assignment, that such assigned right is not pre-dated by any grant, license, or other right heretofore given by me to any party other than the assignee hereto;

iv. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

v. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

In Witness Whereof, I have executed this Worldwide Assignment on the date indicated by my hand and agree that this Worldwide Assignment shall be effective as of the earliest priority date for the aforesaid application(s) for Letters Patent.

PHILLIP A PATTEN  
Name of Inventor 5

  
Signature of Inventor

4-20-17  
Date



**WORLDWIDE ASSIGNMENT**

I, the undersigned TAKASHI YAMAMOTO, hereby declare that I am an inventor of an invention entitled METHODS FOR SORTING AND IMAGING INSECTS the subject matter of which is described in the application for patent (Attorney Docket No: 6494-US-NP )

- declaration executed on \_\_\_\_\_
  - United States Of America Patent Application Serial No. 15/491,454 , filed on April 19 2017 ,
  - PCT Application Serial No. \_\_\_\_\_ filed on \_\_\_\_\_
- which claim(s) its earliest priority to Application Serial No. \_\_\_\_\_, filed on \_\_\_\_\_.

For valuable consideration, the receipt and adequacy of which is hereby acknowledged, and in fulfillment of my pre-existing obligation of assignment to assignee, which is hereby acknowledged, I hereby:

I. Sell, assign, and transfer unto PIONEER HI-BRED INTERNATIONAL, INC., a corporation organized and existing under the laws of the State of Iowa in the United States of America and having its principal place of business at 7100 NW 62<sup>nd</sup> Avenue, P.O. Box 1014, Johnston, Iowa 50131-1014, herein referred to as the assignee, and to assignee's successors and assigns,

(A) the entire right, title, and interest in and to: (1) the aforesaid application(s) for Letters Patent ("Patent"), (2) any priority rights derived from such aforesaid application(s) for Patent by virtue of the International Convention for the Protection of Industrial Property ("International Convention") and any other treaty or understanding for intellectual property for any and all member countries of the International Convention or other treaty or understanding, including rights in any and all provisional applications, (3) any and all of my inventions, whether joint or sole, disclosed in such aforesaid application(s) for Patent, and/or related to or arising out of such aforesaid application(s) for Patent ("Inventions"), (4) any and all applications for Patent for any such Inventions in any country whatsoever, including all provisional, non-provisional, divisional, renewal, substitute, continuation, continuations-in-part, international and convention applications based in whole or in part upon such aforesaid application(s) for Patent and/or such Inventions, (5) any and all patents for any such Inventions in any country whatsoever, including any and all reexams, reissues and extensions of any patent based in whole or in part upon such aforesaid application(s) for Letters Patent and/or such Inventions; (B) the entire right to (1) file such applications in its name or in my name, (2) file such applications under the aforesaid International Convention or any other treaty or understanding, (3) have said patents granted in its name or mine, the Commissioner of Patents and Trademarks of the United States of America and any counterpart in any other patent office being hereby authorized to issue or transfer all of said patents to said assignee in accordance herewith, and (4) enforce said patents and to sue for and recover profits and damages for any and all infringements thereof, whether past, present or future, to the full end of the term or terms for which said patents may be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned without this assignment;

II. Agree, whenever assignee asks, without further compensation but at assignee's expense for actual and reasonable costs incurred,

(A) to communicate to said assignee, its successors, assigns, and legal representatives, any facts known to me respecting such Inventions or the rights described above, (B) to testify in any legal proceeding respecting such Inventions or the rights described above, the location of that testimony to be in the country in which I reside or in the nearest country in which such testimony is legal should my country of residence prohibit such testimony, (C) to execute all applications, papers or instruments necessary or required by said assignee, its successors, assigns and legal representatives, to carry into effect any of the provisions of this instrument, including petitions, specifications, oaths, assignments, disclaimers, and lawful affidavits in form and substance which may be requested by said assignee and (D) generally to do everything possible to aid said assignee, its successors, assigns, and legal representatives to obtain, maintain, defend and enforce patent protection for such Inventions and/or secure title to such Inventions with assignee;

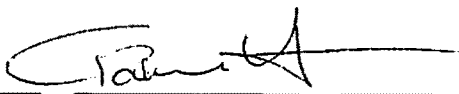
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IV. Agree that my grants and obligations herein shall also bind all of my heirs, executors, administrators, legal representatives, and assigns; and

V. Agree that an authorized representative of assignee is hereby granted the power to insert in this assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office or the patent office of any other country for recordation of this Assignment, including the power to insert on this assignment information regarding application number and filing date when known.

In Witness Whereof, I have executed this Worldwide Assignment on the date indicated by my hand and agree that this Worldwide Assignment shall be effective as of the earliest priority date for the aforesaid application(s) for Letters Patent.

TAKASHI YAMAMOTO  
Name of Inventor 7

  
Signature of Inventor

4-20-2017  
Date