506926160 10/18/2021

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

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EPAS ID: PAT6972996

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|--------------------|----------------|
| MUHAMMAD MOINUDDIN | 10/12/2021 |
| UBAID M. AL-SAGGAF | 10/12/2021 |
| AHMAD KAMAL HASSAN | 10/12/2021 |

RECEIVING PARTY DATA

| Name: | KING ABDULAZIZ UNIVERSITY |
|-----------------|---------------------------|
| Street Address: | P.O. BOX 80200 |
| City: | JEDDAH |
| State/Country: | SAUDI ARABIA |
| Postal Code: | 21589 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 17503440 |

CORRESPONDENCE DATA

Fax Number: (703)413-2220

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.

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: (703) 413-3000
Email: mkorsen@oblon.com
Correspondent Name: OBLON, ET AL.
Address Line 1: 1940 DUKE STREET

Address Line 4: ALEXANDRIA, VIRGINIA 22314

| ATTORNEY DOCKET NUMBER: | 536475US | |
|-------------------------|--|--|
| NAME OF SUBMITTER: | MATTHEW KORSEN | |
| SIGNATURE: | /Matthew Korsen/ | |
| DATE SIGNED: | 10/18/2021 | |
| | This document serves as an Oath/Declaration (37 CFR 1.63). | |

Total Attachments: 3

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PATENT 506926160 REEL: 057815 FRAME: 0426

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

| Title of Invention | PROCESSING BLIND BEAMFORMING FOR MULTI-USER MULTIPLE-INPUT MULTIPLE-OUTPUT (MU-MIMO) SYSTEMS | | | |
|--|---|--|--|--|
| As the below name | d inventor, I hereby declare that: | | | |
| This declaration \(\sums | The attached application, or | | | |
| is directed to: United States application or PCT international application number filed on | | | | |
| The above-identifie | ed application was made or authorized to be made by me. | | | |
| I believe that I am t | he original inventor or an original joint inventor of a claimed invention in the application. | | | |
| WHEREAS, King Abdulaziz University (hereinafter referred to as "ASSIGNEE") having places of business at: P.O. Box 80200, Jeddah, 21589 Saudi Arabia is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefore in the United States and its territorial possessions and in any and all foreign countries; | | | | |
| NOW, THEREFORE, in consideration of good and valuable consideration, the receipt of which is hereby recognized, I, by these presents do sell, assign and transfer unto said ASSIGNEE, the full and exclusive right to the said invention in the United States and its territorial possessions and in all foreign countries (including the right to claim priority under the terms of the International Convention and other relevant International Treaties and Arrangements from the aforesaid application) and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations, substitutions and renewals thereof. | | | | |
| I hereby authorize and request the Patent Office Officials in the United States and its territorial possessions and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said ASSIGNEE as the assignee of my entire right, title and interest in and to the same, for the sole use and behoof of said ASSIGNEE, its (his) successors and assigns, to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made. | | | | |
| Further, I agree that I will communicate to said ASSIGNEE or its (his) representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, make all rightful oaths, and, generally do everything possible to aid said ASSIGNEE, its (his) successors and assigns, to obtain and enforce proper protection for said invention in the United States and its territorial possessions and in any and all foreign countries. | | | | |
| I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. | | | | |
| LEGAL NAME OF | FINVENTOR | | | |
| Inventor: Muham | mad MOINUDDIN Date: October 12, 2021 | | | |
| Signature: | Meirade | | | |

OBLON, McCLELLAND, MAIER & NEUSTADT, L.L.P.

ATTORNEYS AT LAW 1940 DUKE STREET ALEXANDRIA, VIRGINIA 22314

> PATENT REEL: 057815 FRAME: 0427

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

| PROCESSING BLIND BEAMFORMING FOR MULTI-USER MULTIPLE-INPUT MULTIPLE-OUTPUT (MU-MIMO) SYSTEMS | | | |
|--|--|--|--|
| As the below named inventor, I hereby declare that: | | | |
| This declaration \(\sum \) The attached application, or | | | |
| is directed to: United States application or PCT international application number filed on | | | |
| The above-identified application was made or authorized to be made by me. | | | |
| believe that I am the original inventor or an original joint inventor of a claimed invention in the application. | | | |
| WHEREAS, King Abdulaziz University thereinafter referred to as "ASSIGNEE") having places of business at: P.O. Box 80200, Jeddah, 21589 Saudi Arabia s desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefore in the United States and its territorial possessions and in any and all foreign countries; | | | |
| NOW, THEREFORE, in consideration of good and valuable consideration, the receipt of which is hereby recognized, I, by these presents do sell, assign and transfer unto said ASSIGNEE, the full and exclusive right to the said invention in the United States and its territorial possessions and in all foreign countries (including the right to claim priority under the terms of the International Convention and other relevant International Treaties and Arrangements from the aforesaid application) and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations, substitutions and renewals thereof. | | | |
| I hereby authorize and request the Patent Office Officials in the United States and its territorial possessions and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said ASSIGNEE as the assignee of my entire right, title and interest in and to the same, for the sole use and behoof of said ASSIGNEE, its (his) successors and assigns, to the full end of the term for which said Letters Patent may be granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made. | | | |
| Further, I agree that I will communicate to said ASSIGNEE or its (his) representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, make all rightful oaths, and, generally do everything possible to aid said ASSIGNEE, its (his) successors and assigns, to obtain and enforce proper protection for said invention in the United States and its territorial possessions and in any and all foreign countries. | | | |
| I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. | | | |
| LEGAL NAME OF INVENTOR | | | |
| Inventor: Ubaid M. AL-SAGGAF Date: October 12, 2021 Signature: | | | |

OBLON, McCLELLAND, MAIER & NEUSTADT, L.L.P.

ATTORNEYS AT LAW 1940 DUKE STREET ALEXANDRIA, VIRGINIA 22314

> PATENT REEL: 057815 FRAME: 0428

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76) AND ASSIGNMENT FOR SINGLE ASSIGNEE

| Title of Invention | PROCESSING BLIND BEAMFORMING FOR MULTI INPUT MULTIPLE-OUTPUT (MU-MIMO) SYSTEMS | | |
|--|---|---|--|
| As the below name | ned inventor, I hereby declare that: | | |
| This declaration \ | The attached application, or | | |
| is directed to: | United States application or PCT international application numb filed on | er | |
| The above-identifie | fied application was made or authorized to be made by me. | | |
| I believe that I am t | n the original inventor or an original joint inventor of a claimed inven | ntion in the application. | |
| (hereinafter referred is desirous of acqui | ing Abdulaziz University red to as "ASSIGNEE") having places of business at: P.O. Box 8020 uiring the entire right, title and interest in and to said invention and interest in the United States and its territorial possessions and in any | n and to any Letters Patent that | |
| recognized, I, by the said invention in the claim priority und Arrangements from Patent which may be | EFORE, in consideration of good and valuable consideration, the these presents do sell, assign and transfer unto said ASSIGNEE, the United States and its territorial possessions and in all foreign conder the terms of the International Convention and other relevant the aforesaid application) and the entire right, title and interest be granted therefor in the United States and its territorial possession to any and all divisions, reissues, continuations, substitutions and | e full and exclusive right to the ountries (including the right to ant International Treaties and t in and to any and all Letters ions and in any and all foreign | |
| any and all foreign assignee of my enti (his) successors and | orize and request the Patent Office Officials in the United States and gn countries to issue any and all of said Letters Patent, when grant ntire right, title and interest in and to the same, for the sole use and and assigns, to the full end of the term for which said Letters Paten would have been held by me had this Assignment and sale not be | ted, to said ASSIGNEE as the behoof of said ASSIGNEE, its at may be granted, as fully and | |
| Further, I agree that I will communicate to said ASSIGNEE or its (his) representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said ASSIGNEE, make all rightful oaths, and, generally do everything possible to aid said ASSIGNEE, its (his) successors and assigns, to obtain and enforce proper protection for said invention in the United States and its territorial possessions and in any and all foreign countries. | | | |
| | owledge that any willful false statement made in this declaration is pronuent of not more than five (5) years, or both. | unishable under 18 U.S.C. 1001 | |
| LEGAL NAME OF | OF INVENTOR | | |
| Inventor: Ahmad | ıd Kamal HASSAN Date: Oct | ober 12, 2021 | |
| Signature: | , ₩ V | | |

OBLON, McCLELLAND, MAIER & NEUSTADT, L.L.P.

ATTORNEYS AT LAW 1940 DUKE STREET ALEXANDRIA, VIRGINIA 22314

RECORDED: 10/18/2021

PATENT REEL: 057815 FRAME: 0429