

PATENT ASSIGNMENT COVER SHEET

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Stylesheet Version v1.2

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| UNITED TECHNOLOGIES CORPORATION | 10/10/2013 |
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| Postal Code: | 06043 |
| PROPERTY NUMBERS Total: 1 | |
| PATENT | |

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REEL: 031832 FRAME: 0056

CH \$40.00 12085862

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| Property Type | Number |
| Application Number: | 12085862 |

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| CORRESPONDENCE DATA | |
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| Correspondent Name: | DAVID R. FAIRBAIRN |
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| | |
|-------------------------|----------------------|
| ATTORNEY DOCKET NUMBER: | E275.12-0001 |
| NAME OF SUBMITTER: | DAVID R. FAIRBAIRN |
| Signature: | /David R. Fairbairn/ |
| Date: | 12/20/2013 |

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| <p>Total Attachments: 12</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page1.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page2.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page3.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page4.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page5.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page6.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page7.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page8.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page9.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page10.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page11.tif</p> <p>source=2013-12-20-Signed-Assignment-E275-12-0001#page12.tif</p> |
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**Agreement for Release of Patent Rights And
Assignment of Patent Rights to Inventors**

This agreement for release of patent rights and assignment of patent rights to inventors (this "Agreement") is made and entered into as of the 10th day of October, 2013, by and between United Technologies Corporation, a Delaware corporation, acting through its Pratt & Whitney Division ("UTC"), with offices at 400 Main Street, East Hartford CT 06108, and Gary Rodriguez, William Good, Edward Britt, and David Loda ("Inventors"), who reside at 15306 Foxglove Court, Parker Colorado 80134, 9449 Lark Sparrow Drive, Highlands Ranch, Colorado 80216, 20850 Pepper Tree Lane, Cupertino, California 95014, and 234 Hebron Road, Bolton, Connecticut 06043, respectively.

WHEREAS, Inventors conceived and disclosed to UTC, an Invention entitled "**Vehicle Based Threat Detection System**" and recorded in UTC's patent management system as docket number **ID-084-01486-US** ("Invention"), which is attached hereto as Exhibit A; and

WHEREAS, the Invention was conceived and/or first reduced to practice by the Inventors while employed by UTC; and

WHEREAS, UTC has filed one or more patent applications listed on Exhibit B drawn to the Invention ("Patent Applications"); and

WHEREAS, subject to the terms and conditions of this Agreement, UTC is willing to release and assign to the Inventors any and all of UTC's ownership rights in and to the Invention and Patent Applications.

NOW, THEREFORE, the parties hereto agree as follows:

1. Subject to the terms and conditions of this Agreement, UTC hereby releases and transfers to the Inventors, any and all of UTC's ownership rights in and to the Invention and Patent Applications (collectively, the "Patent Rights").

2. Inventors are solely responsible for any and all actions hereafter required to protect the Inventions and/or further prosecute and prevent abandonment of the Patent Applications, and for all costs, fees, and expenses regarding any further development of the Invention or prosecution of the Patent Applications, including the costs for obtaining and maintaining any patents for the Invention.

3. The Invention and Patent Applications include only that subject matter expressly disclosed in Exhibit A and Exhibit B and do not include any other inventions or improvements, whether made before or after the date of this Agreement. Without limitation, the Invention and Patent Applications do not include related inventions that may currently exist or that may arise through future development, or any background or other rights of any kind that may be needed to practice the Invention. In no event will the Invention or Patent Applications be deemed to encompass any rights of any third party.

4. If Inventors receive royalties or other income from the Invention, half of any royalties or other income Inventors receive will be paid to UTC until UTC has recovered all of its out of pocket expenses incurred in protecting the subject matter referenced in Exhibit A and Exhibit B before the date of this Agreement.

5. Inventors represent and warrant that Inventors are the only inventors of the Invention and Patent Applications.

6. Inventors further represent and warrant that Inventors have complied with all obligations under Inventors' Intellectual Property Agreements with UTC, and under UTC's policies and procedures, to disclose fully and accurately the Invention and all corresponding data that would assist UTC in assessing the value of the Invention to UTC, and in determining whether to file a patent application and/or develop the Invention, or to provide this release and assignment to Inventors. Inventors represent and warrant that Inventors have fully disclosed to UTC the Invention and the usefulness of the Invention.

7. Inventors hereby grant and promise to grant to UTC, including its present and future subsidiaries and affiliates, a non-exclusive, perpetual, irrevocable, freely transferable and sublicensable, royalty-free license to

practice and have practiced, the Invention, including under the Patent Applications and any other applications and patent rights that may arise therefrom, throughout the world.

8. The rights of Inventors and UTC in any improvements to the Invention or new inventions stemming from continued research will be governed by the Intellectual Property Agreement and any subsequent agreements, and to the extent that the development work is not governed by the Intellectual Property Agreement or any subsequent agreement, Inventors hereby grant and promise to grant to UTC, including its present and future subsidiaries and affiliates, a non-exclusive, perpetual, irrevocable, freely transferable and sublicensable, royalty-free license to practice and have practice any and all future developments of the Invention throughout the world.

9. Inventors agrees to fully indemnify and hold UTC, including its present and future subsidiaries and affiliates, and its directors, officers, employees and agents harmless from and against any and all claims, demands, losses or causes of action related in any way to the protection, development, production, marketing, sale, licensing, commercialization, or other exploitation of the Patent Rights by the Inventors and/or the Inventors' assigns, transferees, partners, licensees, suppliers, contractors, or other persons.

10. Inventors understand that the Patent Rights are being assigned to Inventors for Inventors' own personal activities. UTC does not have any responsibility to develop the Invention further and UTC shall not be obligated to expend any additional funds, equipment, facilities or other resources. Inventors agree not to use any UTC time, equipment, supplies, facilities, materials or other resources to protect, develop, produce, market, sell, license, commercialize, or otherwise exploit the Invention after execution of this Agreement without UTC's prior written approval and full reimbursement of the costs by Inventors.

11. DISCLAIMERS BY UTC AND EXCLUSIONS OF INVENTORS REMEDIES.

(A) NONE OF UTC, ITS SUBSIDIARIES, AFFILIATES, DIRECTORS, OFFICERS, EMPLOYEES, OR AGENTS MAKE, AND EACH OF THEM EXPRESSLY DISCLAIMS, ANY REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INVENTION, PATENT APPLICATIONS, PATENT RIGHTS OR ANY SUBJECT MATTER OF THIS AGREEMENT, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF QUIET TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, PATENTABILITY, VALIDITY, NONINFRINGEMENT, MERCHANTABILITY, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE. WITHOUT LIMITING THE FOREGOING, NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A REPRESENTATION MADE OR WARRANTY GIVEN BY UTC THAT THE PRACTICE OF THE INVENTION OR ANY PATENT RIGHTS WILL NOT INFRINGE THE PATENT RIGHTS OF ANY THIRD PARTY.

(B) IN NO EVENT SHALL UTC, INCLUDING ITS PRESENT AND FUTURE SUBSIDIARIES AND AFFILIATES, OR ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS, BE LIABLE FOR ANY DAMAGES RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT, INCLUDING WITHOUT LIMITATION ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ECONOMIC DAMAGES OR INJURY TO PROPERTY OR REPUTATION, LOST SALES OR LOST PROFITS, REGARDLESS OF WHETHER UTC SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY OF SUCH DAMAGES.

12. This Agreement shall be freely assignable and transferable by UTC, but may not be assigned or transferred by any of the Inventors without the prior written consent of UTC in UTC's sole discretion.

13. This Agreement shall be governed by the laws of the State of Connecticut, and the sole venue for all disputes arising out of or relating to this agreement shall be the state and federal courts of Hartford County, Connecticut.

14. This Agreement, and the Exhibits referred to herein, contain the entire understanding of the Parties hereto with regard to the subject matter contained herein, and supersede all other prior agreements and understandings between the parties hereto, whether written or oral.

15. In case any one or more of the provisions contained herein is, for any reason, held to be invalid, illegal or unenforceable in any respect, such provision or provisions will be ineffective to the extent, but only to the extent, of such invalidity, illegality or unenforceability without invalidating the remainder of such provision or provisions, or any other provisions hereof. Upon any determination that a provision is held invalid, illegal or unenforceable, the parties will negotiate in good faith to modify this Agreement so as to effect the original intent of the parties hereto to the fullest extent possible.

16. Any term or provision of this Agreement may be waived by the party entitled to the benefit thereof. Any such waiver shall be validly and sufficiently authorized for the purposes of this Agreement if, as to any party, it is authorized in writing by an authorized representative of such party. The failure of any party to enforce at any time any provision of this Agreement shall not be construed to be a waiver of such provision, nor in any way to affect the validity of this Agreement or any part hereof or the right of any party thereafter to enforce each and every such provision. No waiver of any breach of this Agreement shall be held to constitute a waiver of any other or subsequent breach.

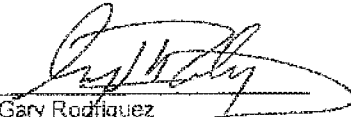
17. The parties each acknowledge and agree that they have had the opportunity to review this Agreement and to discuss it with their respective counsel. This Agreement will not be construed against the party preparing it but will be construed as if the parties jointly prepared this Agreement, and any uncertainty or ambiguity will not be interpreted against any one of them. In entering into this Agreement, the parties are not relying on any representations or statements of the parties or their attorneys except as expressly stated in this Agreement.

18. This Agreement is for the sole benefit of the parties hereto and their permitted assigns and successors, and nothing herein expressed or implied is intended to or shall give or be construed to give to any person, other than the parties hereto and such permitted assigns and successors, any legal or equitable rights or remedies hereunder.

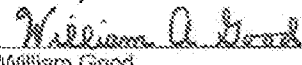
IN WITNESS WHEREOF, this release and assignment has been duly executed by UTC and the Inventors as of the date set forth below.

INVENTORS

UNITED TECHNOLOGIES CORPORATION,
PRATT & WHITNEY DIVISION


Gary Rodriguez 15 OCT 2013


Brian R. Suffredini
Vice President & Counsel, Intellectual Property


William Good 11 OCT 2013


Edward Britt 15 Oct. 2013


David Loda 15 OCT 2013

Exhibit A

Attached.

INVENTION DISCLOSURE QUESTIONNAIRE

| | |
|--|--|
| Title of Invention: Vehicle-Based Threat Detection and Screening System | |
| 1. Inventor(s). (If more than one inventor, give a brief statement of each inventor's contribution): William A. Good (described the initial concept); Edward J. Britt (contributed refinements and enhancements to the concept); and Gary J. Rodriguez (contributed refinements and enhancement to the concept). | |
| 2. Earliest date of conception: September 11, 2001 | |
| 3. Earliest date invention described in writing: a. Identification of description (Lab Notebook, Drawing Number, etc): b. First description (Sketch or drawing bearing signature and date): Single page concept description prepared on and dated September 30, 2001 | |
| 4. Date invention was first disclosed to others (give names): September 30, 2001 disclosure to Chas Wilits at NASA HQ (Proprietary Briefing and Discussion) | |
| 5. Date of first actual reduction to practice: N/A | |
| 6. Has invention been described in a publication or is it in public use or on sale? No | |
| 7. Is any publication, public use, or sale contemplated? Yes | |
| 8. Has the invention been described in any contract or progress report? No a. Details: N/A Is such a description contemplated? Yes. A description is included in briefings to U.S. government officials that are currently in progress. | |
| 9. Description of present and planned program for development of invention. We will seek government and private funding to develop and qualify a vehicle-based threat detection system. Once successful, a business enterprise will be launched to exploit the implementation of this technology. | |

WITNESSES. Read and understood by

INVENTORS:

William A. Good 2/11/04
Edward J. Britt 2/11/04
Gary J. Rodriguez 2/11/04
12 Feb 2004

| | |
|---|------------|
| 11. Security classification of invention: Unclassified | |
| 12. Work Order Release Number to which inventor(s) charged time when invention was: N/A | |
| a. Conceived: N/A | |
| b. Reduced to practice: N/A | |
| 13. Does invention fall within the scope of the Statement of Work of any government contract to which the inventor(s) has been charging time? No | |
| Contract Number: | N/A |
| Details: | N/A |
| 14. If the invention has not been reduced to practice, will it be reduced to practice under a Government contract or on an in house project? TBD | |
| Contract Number: | N/A |
| Project Number: | N/A |
| In-House Number: | N/A |

Name and location of each inventor

| | | | | | |
|-------------|-------------------|---------|-------|---------|---------|
| Inventor #1 | William A. Good | Ext. | N/A | Bldg/Rm | N/A |
| Supervisor | Not P&W Employee | Bldg/Rm | N/A | | |
| Inventor #2 | Edward J. Britt | Ext. | 4424 | Bldg/Rm | 010/438 |
| Supervisor | Frank Ryan | Bldg/Rm | 012UP | | |
| Inventor #3 | Gary J. Rodríguez | Ext. | N/A | Bldg/Rm | N/A |
| Supervisor | Not P&W Employee | Bldg/Rm | N/A | | |

WITNESSES: Read and understood by

INVENTORS:

William A. Good 2/11/04 William A. Good 2/11/04
Edward J. Britt 2/12/04 Edward J. Britt 2/11/04
12-Feb 2004

DISCLOSURE OF INVENTION

TITLE: Vehicle-Based Threat Detection and Screening System

BACKGROUND AND PROBLEM STATEMENT:

A Serious Unacknowledged Danger

The continental U.S. and all American citizens are potentially in serious danger from terrorist actions involving cargo aircraft. The danger goes beyond the possibility that cargo planes enroute to the U.S. could be hijacked. The actual threat of hijacking has even been acknowledged by Homeland Security. A potentially worse scenario, which has been poorly acknowledged, is the very real possibility that terrorists could surreptitiously transport a Weapon of Mass Destruction (WMD) into our country onboard a cargo plane. Tragically, even before the cargo has a chance of inspection on the ground, the weapon aboard might be detonated by an automatic system when the aircraft approaches its landing at a U.S. population center. A new system is necessary to detect the potential of any WMD being loaded onto these cargo aircraft. What is needed is a Vehicle-Based system of countermeasures.

Ground-based systems for cargo and personnel screening, which are currently being set up by the government, would be ineffective against this type of threat. Ground-based screening measures are inadequate because cargo to be shipped from a foreign airport is under the control of the local (foreign) personnel until it is loaded into the aircraft for departure. U.S. inspectors located at various foreign shipping points are not adequate protection; although (if any of them are present) they might sometimes check the contents of crates and paper work — but not necessarily. The final decision about the acceptability of the cargo rests with the captain of the flight that will carry the shipment. The captain can accept or reject the load based on his assessment of the flight safety. A WMD might be hidden in pre-packaged pallets or introduced while cargo is being staged for loading — it might also be possible for a terrorist to place weapons inside some of the shipping crates. The fact that ordinary cargo is often stolen is proof that it could be possible to sneak something into one of the large pallets or crates with dimensions up to 2.5 meters (8 feet). Furthermore, terrorists might accomplish an inside job by bribing or coercing local personnel to gain access. No amount of domestic U.S. airport security offers protection against this problem. A recent stunt by ABC News showed that a quantity of depleted U-238 could be air shipped from Jakarta into downtown Los Angeles without any intervention by U.S. Customs or Homeland Security.

Normally, the U.S. customs authorities expect to take control of the situation after arrival in the U.S. by holding the cargo in impound until it has been cleared to enter our country. Unfortunately, this process would fail catastrophically if the cargo contained a weapon set to detonate when the aircraft descends on final approach before landing. Consequences of nuclear air burst over a major city could be horrific. Even a "radio-logical bomb" — a conventional explosive packed with radioactive waste — would be very devastating, because of the media panic it would create. Some type of weapon arranged to disperse a chemical or biological agent is also a great concern. A device designed to explode the aircraft and produce widespread dispersal of chemical or biological materials could potentially kill hundreds of thousands of American citizens. Of course the crew would be killed and the aircraft would crash in any of these scenarios.

WITNESSES: Read and understood by

INVENTORS:

Freddie J. Good 2/11/04

William A. Good 2/11/04 John A. Good 2/11/04

Scott B. Danner 2/12/04 Edward J. Smith
12 Feb 2004

DISCLOSURE OF INVENTION

DESCRIPTION: Vehicle-Based Threat Detection and Screening System

NOVEL / NON-OBVIOUS FEATURES:

Effective Vehicle-Based Countermeasures

The only effective prevention against WMD hidden in cargo would be sensors mounted inside the aircraft to inform the pilot that a dangerous substance and/or a weapon had been loaded on the aircraft. Investigation has shown that there are several credible suppliers of radiation detectors, which could be retrofitted into cargo aircraft as portal monitors to survey cargo being loaded into the aircraft. As devices are currently available, it would be preferable to initially sense both neutrons and gamma rays in order to detect nuclear weapons. It should be feasible to maintain calibration of the sensors and guard against tampering. The portal sensors, which monitor the aircraft cargo doors, would hopefully inform the crew that dangerous cargo was being (or had been) loaded.

After all aircraft doors have been closed, the air inside could be sampled to detect chemical/biological agents or a chemical explosive that could serve as a weapon trigger. Hamilton Sundstrand (HS) is developing chem/bio sensors and would be well equipped to perform the aircraft installation. In case the pilot gets an alarm message, there should be hand-held monitors available onboard the aircraft. The hand-held monitors would be used to individually survey each crate or pallet, in order to determine which one is the source that caused the alarm from the cargo loading monitor. It would be prudent for the United States to design, develop, fabricate, adapt, and install, these monitors on the air cargo fleet before there is some nuclear bomb attempt. After the sensors for nuclear threats have been installed and are operational on the fleet of cargo aircraft, later upgrades of sensors and software could be implemented to address additional threats from other weapons of mass destruction (chemical / biological) as these threats become more credible. These devices could also be applied to commercial aircraft and adapted to other transport modes for monitoring cargo entering the many vulnerable U.S. harbors and transport hubs.

WITNESSES: Read and understood by

INVENTORS:

John J. Good 2/11/04

William B. Good 2/11/04 Paul T. G. 2/11/04

John J. Good 2/12/04

Edward J. Smith

12 Feb 2004

Weapons of Mass Destruction Detection System

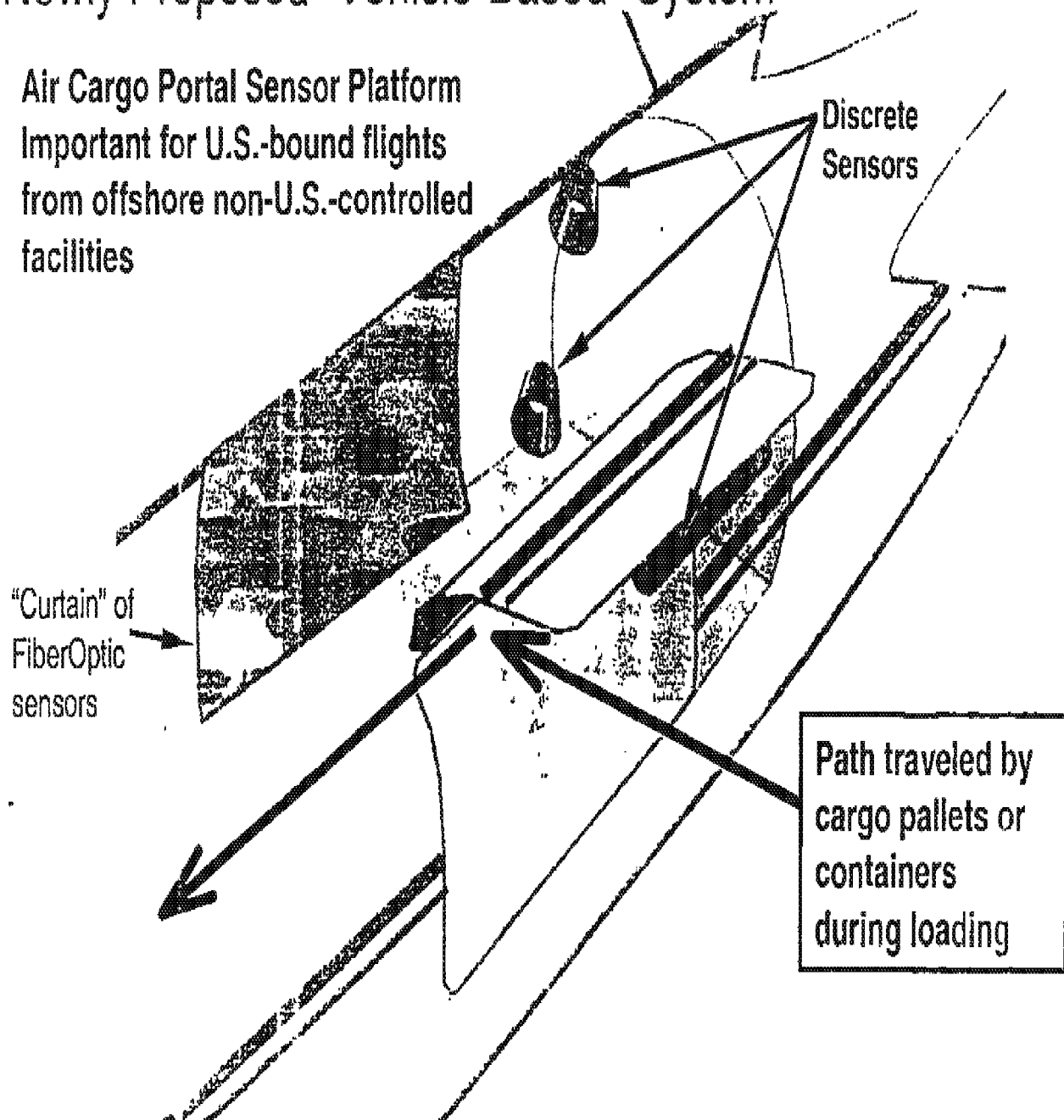
Newly Proposed "Vehicle-Based" System

- Vehicle-based cargo aircraft systems should start with radiation detection
 - Nuclear sensor technology is more mature than chem/bio sensors at the present time
 - TSA Systems is a preferred provider of nuclear sensors and subsystems
 - Current models sense both gammas and neutrons in order to detect weapons grade U-235 or plutonium - even when surrounded by shielding (10 g HEU, 1 g of ^{239}Pu , or 120g of 99% shielded ^{239}Pu)
- Plan is to evolve the vehicle-based system into additional onboard sensors for biological, chemical, and explosives - even possibly illegal drugs
 - Onboard systems would include chem/bio detection as sensor technology matures
 - Hamilton Sundstrand Sensor Systems, another UTC company, is a preferred provider of chem/bio sensors
- Key design concepts support evolutionary growth to handle additional threats
 - Standardized interface for adding additional sensors
 - Software upgrades for adding improved threat analysis

Weapons of Mass Destruction Detection System

Newly Proposed "Vehicle-Based" System

Air Cargo Portal Sensor Platform
Important for U.S.-bound flights
from offshore non-U.S.-controlled
facilities



Company Private and Proprietary to P&W and Threat Detection Services

Weapons of Mass Destruction Detection System

Γ (Gamma) - Neutron Counters for Aircraft

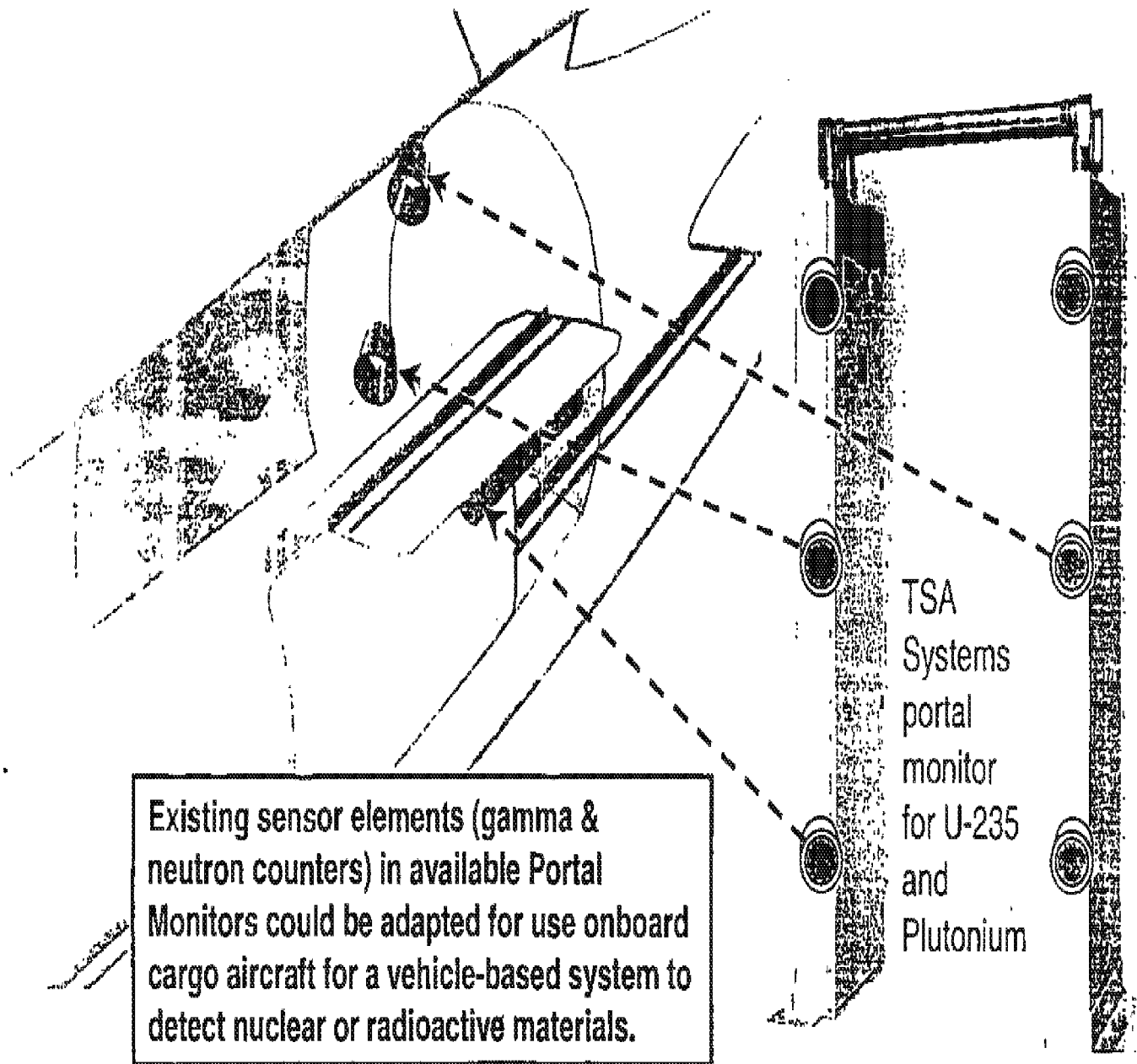


Exhibit B

| FILE # | TITLE | MATTER TYPE | COUNTRY | STATUS | APPLICATION # |
|---------------------|--|----------------|-----------------------------|---------|------------------|
| PA-084.01486- US | VEHICLE-BASED THREAT DETECTION SYSTEM | Utility - ORG | United States of America | Pending | 12/085,862 |