





US 20200223557A1

(19) **United States**

(12) **Patent Application Publication**
MACLEAN

(10) **Pub. No.: US 2020/0223557 A1**

(43) **Pub. Date: Jul. 16, 2020**

(54) **MOBILE AIRCRAFT SECONDARY BARRIER
CART**

(52) **U.S. Cl.**

CPC *B64D 45/0018* (2019.08); *F41H 5/14*
(2013.01); *B64D 45/0021* (2019.08); *B64D*
11/04 (2013.01)

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(57)

ABSTRACT

(21) Appl. No.: **16/836,842**

(22) Filed: **Mar. 31, 2020**

Related U.S. Application Data

(63) Continuation-in-part of application No. 15/799,391,
filed on Oct. 31, 2017, now Pat. No. 10,611,493.

Publication Classification

(51) **Int. Cl.**

B64D 45/00 (2006.01)
B64D 11/04 (2006.01)
F41H 5/14 (2006.01)

A Mobile Aircraft Secondary Barrier Cart which includes a main housing, with at least two retractable and expandable rigid barriers or a soft non-porous curtain that rise up from the main housing and encompass the entire forward galley/main cabin entrance and locks into place. The rigid barriers, when present, generally wedge into a female channel surrounding forward galley/main cabin entrance to hold the rigid barriers in place. The purpose of the Mobile Aircraft Secondary Barrier Cart and the included curtain is to prevent unauthorized individuals from entering the Flightdeck when it is unlocked during flight.

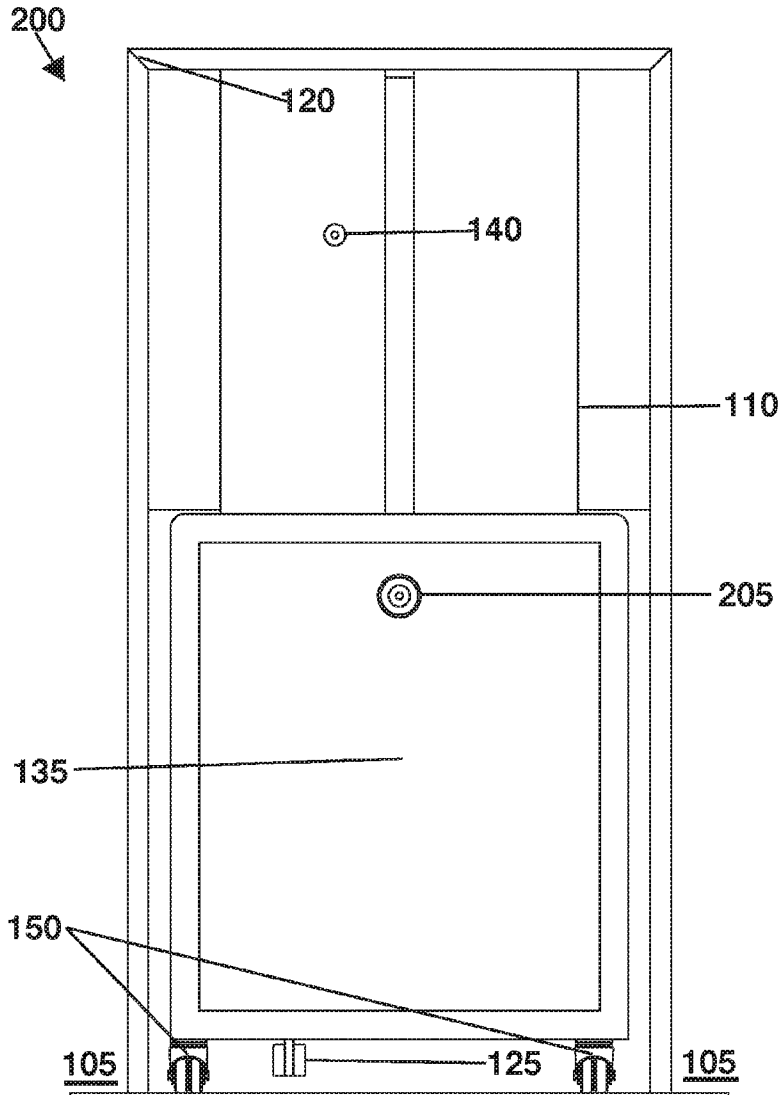


Figure 1

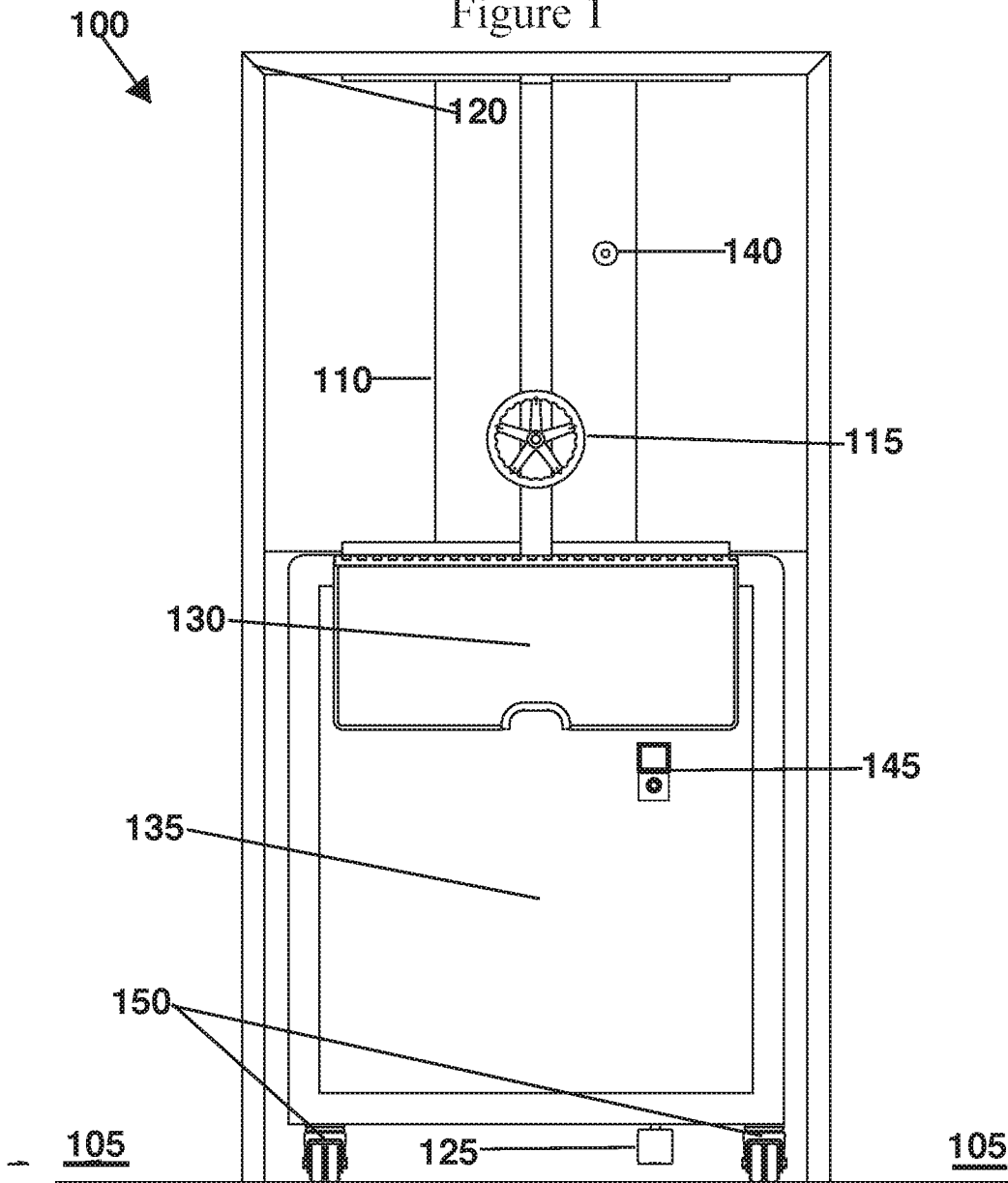


Figure 2

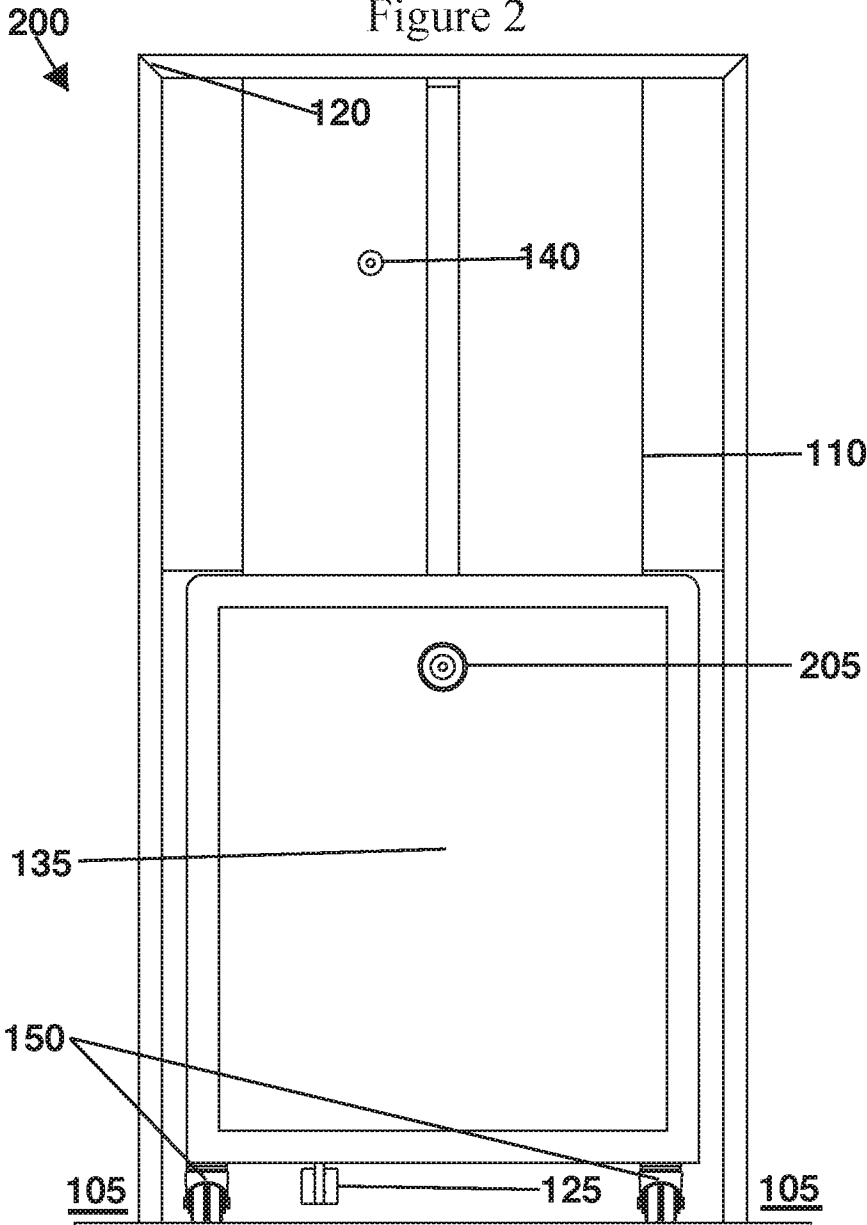
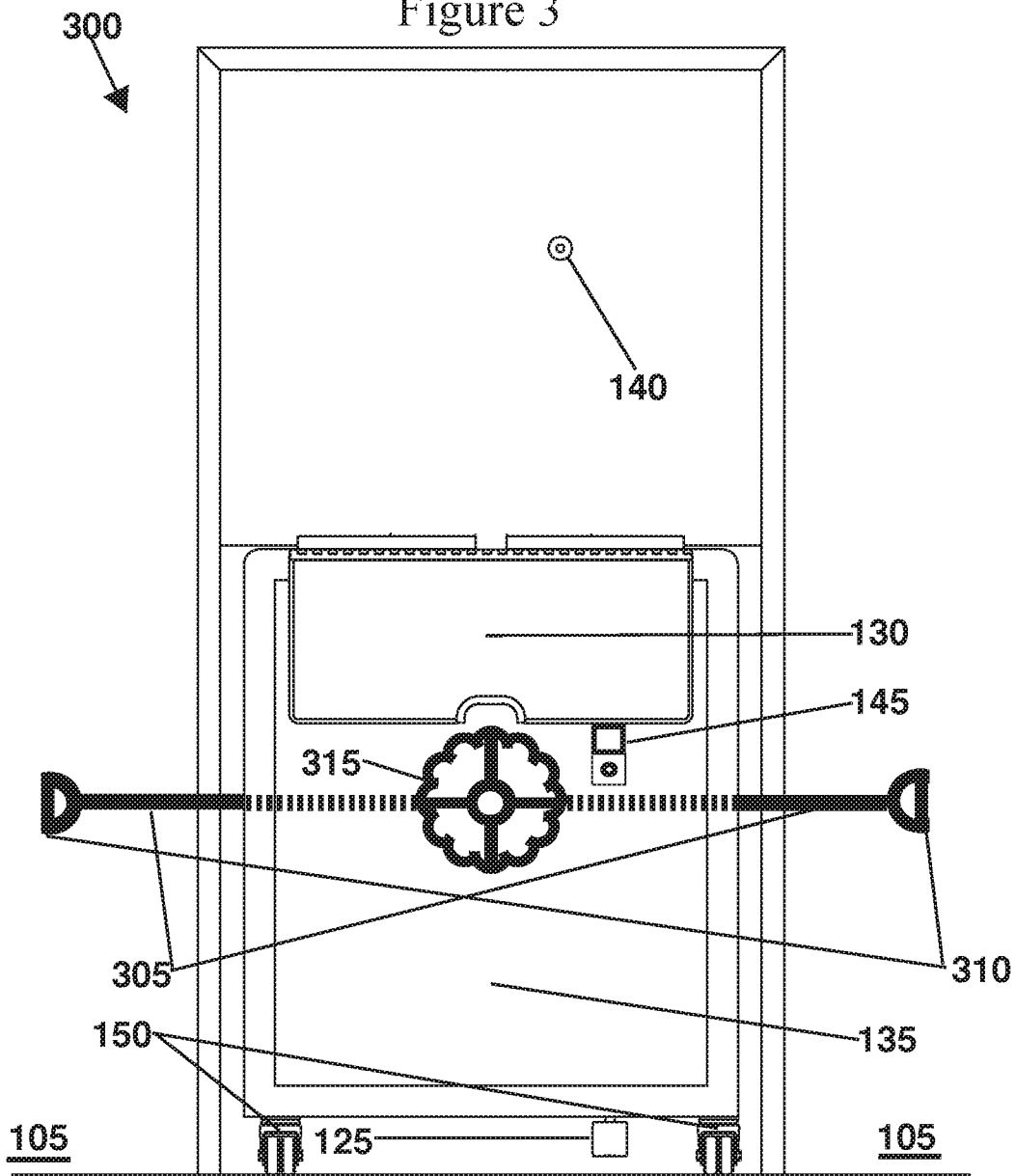


Figure 3



MOBILE AIRCRAFT SECONDARY BARRIER CART

FIELD OF THE INVENTION

[0001] A Mobile Aircraft Secondary Barrier Cart (“MASBC”), also known as an Anti-Terrorism/Anti-Personnel Mobile Commercial Passenger Aircraft Physical Flightdeck or Mobile Cockpit Secondary Barrier Gallery Cart, is used to prevent an individual from sprinting and diving into the Flightdeck (or cockpit) of a commercial passenger aircraft while the cockpit door is routinely opened during flight. The present invention is particularly aimed at security of commercial aircraft while in flight.

RELATED APPLICATION

[0002] This application is a continuation-in-part of co-pending U.S. patent application Ser. No. 15/799,391 filed on Oct. 31, 2017. U.S. patent application Ser. No. 15/799,391 is incorporated by reference herein in its entirety.

BACKGROUND

[0003] Unfortunately, solo suicidal terrorist attacks, also known as “lone-wolf attacks,” are becoming more common daily. “Lone-wolf attacks” are delivered by such means as Improvised Explosive Devices (IED) worn on the body of an attacker, or contained in a vehicle which is then driven into a crowd of victims.

[0004] Suicidal “lone-wolf attacks” on commercial passenger aircraft (aircraft) are a very real threat because of the inability of detection by airport security screening machines, airport screeners, law enforcement, and the Intelligence Community. Firearms pose less of a threat than IEDs because of the detectable metallic parts of firearms, the attacker’s fear of extinguishing all of the ammunition and then being restrained, and the limited killing ability of a standard semiautomatic pistol’s 18 rounds. Building, hiding, and smuggling IEDs requires special material, numerous experts, and planning. A major operation involving multiple individuals is likely to be detected.

[0005] Unlocked Flightdecks are also vulnerable to chemical attacks therefore the best secondary barrier system is non-porous.

[0006] After the Sep. 11, 2001 terrorist attacks (9/11), a pilot will not risk total destruction of the aircraft by unlocking the Flightdeck under duress.

[0007] Sprinting and diving into a Flightdeck, also known as a “cockpit,” only needs one attacker and one opportunity when a pilot enters the cabin during flight to use the lavatory, obtain sustenance, crew-rest, or inspect the surface of the aircraft’s wings

BRIEF SUMMARY OF THE INVENTION

[0008] Currently most commercial passenger aircraft (aircraft) do not have a secondary barrier system to prevent an individual from sprinting and diving into an unlocked Flightdeck during flight. A secondary barrier system is preferably non-porous to protect against chemical attacks on unlocked Flightdecks. A mobile aircraft secondary barrier cart of the present invention is an effective means to prevent an individual from sprinting and diving into an unlocked commercial passenger aircraft Flightdeck in order to destroy the aircraft while in flight.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] In the drawings, like reference characters generally refer to the same parts throughout the different views. The drawings are not necessarily to scale, rather emphasis is generally being placed upon illustrating the principles of various embodiments. The foregoing and other aspects of the invention will be better understood from the following description of embodiments of the invention, by way of example only, and with reference to the accompanying drawings, in which:

[0010] FIG. 1 depicts a view from inside the forward galley when one embodiment of the rigid expandable panels MASBC is deployed and wedged into a female channel surrounding the forward galley/main cabin entrance;

[0011] FIG. 2 depicts a view from the passenger cabin (main cabin) when a second embodiment of a rigid expandable panels MASBC is deployed and wedged into a female channel surrounding the forward galley/main cabin entrance; and

[0012] FIG. 3 depicts a view from the passenger cabin (main cabin) when a third embodiment, the non-porous soft curtain MASBC, is deployed.

DETAILED DESCRIPTION OF THE INVENTION

Technical Problem

[0013] Most commercial passenger aircraft do not have a secondary barrier system to prevent an individual from sprinting and diving into an unlocked Flightdeck in order to destroy the aircraft while in flight.

[0014] Unlocked Flightdecks are also vulnerable to chemical attacks therefore the best secondary barrier system is non-porous.

[0015] Despite 9/11, air carriers do not build Flightdeck secondary barriers into the vast majority of newly manufactured aircraft. Until there is a regulatory or legal mandate to build barriers into brand new cabins, thousands of existing aircraft cannot be cost effectively retrofitted. Section 336 of the FAA Reauthorization Act of 2018 mandates Flightdeck secondary barriers on aircraft built after October 2019.

[0016] A Mobile Aircraft Secondary Barrier Cart (“MASBC”) is needed to stop an attacking individual for at least five seconds so that a pilot can close the Flightdeck door and emergency land the aircraft. Due to mandate enacted after 9/11, 14 Code of Federal Regulations Section 25.795, all Flightdeck doors can withstand a strong individual trying to break it down-long enough to emergency land. However, pilots need to unlock the reinforced Flightdeck doors during flight in order to check for potential wing problems (i.e., flaps not extended or withdrawn), crew changes for sleep or rest during long flights, meals, and to use the lavatory.

[0017] A MASBC is a perfectly effective inflight security invention and is a relatively inexpensive mobile commercial passenger aircraft galley cart physical secondary barrier to stop an individual from sprinting and diving into an unlocked Flightdeck in order to destroy it during flight. In addition, the MASBC of the present invention requires only minimal modifications to aircraft already in the field.

[0018] Inward-opening Flightdeck doors, that open away from the main passenger cabin, are exceptionally more vulnerable to an attack because the door swings against a

pilot the moment he/she opens it. An attack on an outward-opening door, that opens away from the Flightdeck, gives a crew member the chance to use his/her backside to close it in which the frame reinforces the door. An attack on an outward-opening door Flightdeck requires the attacker to have to wedge himself between the door and the frame if he cannot dive into the Flightdeck semi-impeded or unimpeded.

[0019] Only spring-latches protect Flightdecks with an inward-opening door. There are approximately 1,187 existing aircraft with inward-opening doors.

[0020] Most aircraft that fly over large bodies of water are wide body (two aisles). It is more difficult to attack the Flightdeck on a wide-body aircraft than a single-aisle one due to the extra distance between the Flightdeck entrance and the first row in the cabin.

[0021] The existing Garofani Installed Physical Secondary Barrier (GGIPSB) system (Patent Publication No. US20060000946—Inventors Primo, Dante, and Renato Garofani) is expensive to manufacture, install, and maintain due to its relatively excessive weight and bulkiness, and the fact it has to be built into the aircraft. The GIPSB is normally installed in the busiest choke-point of the aircraft: to the right of the main aircraft entry door and inside of the forward galley entrance.

[0022] Once the GIPSB has been installed, it gets degraded after being subjected to usage during numerous flights and pilots exiting the Flightdeck. The GIPSB stows into the forward galley entrance causing it to protrude into the aisle hence causing it to be exposed to all of the passengers, luggage, and standard sustenance service trolley galley carts. Due to it being in the busiest transit area of the aircraft, the GIPSB also gets damaged by passengers accidentally hitting it with their carry-on luggage or the flight crew running into it with standard sustenance service trolley galley carts.

[0023] An inoperable GIPSB not only leaves the aircraft vulnerable to destruction, but it takes the aircraft out of service for an extended duration: While an GIPSB maintenance order is drafted and transmitted by an aircrew member, an GIPSB technician gets dispatched, a technician assesses the damage, a technician orders the GIPSB parts, the parts may have to be manufactured if not in stock, and finally, the time it takes to repair and/or replace the GIPSB. Because the GIPSB has to be glued, riveted, or screwed into the aircraft cabin, there also exists the potential of damage to the cabin which would also need repair.

[0024] An inoperable GIPSB takes an aircraft temporarily out of service and reduces air carriers' profits.

[0025] Another danger posed the GIPSB's very large main-housing attached to the cabin can collapse during severe turbulence or a hard-landing and prevent emergency egress through the aircraft's main chokepoint and exit.

[0026] Due to the GIPSB over-engineering, i.e. retractable cables and female/male locking mechanisms, air turbulence could also cause it to become inoperable during flight.

[0027] Due to a GIPSB being in the area of the highest passenger, carry-on luggage, and standard sustenance service trolley galley cart traffic that could accidentally damage and render it inoperable, it presents a vulnerability to the Flightdeck due to the fact it cannot be repaired or replaced until after landing.

[0028] Premeditating his attack, an attacker can chemically (glue) or mechanically sabotage a GIPSB while crew

members and passengers are distracted, or when cabin lights are dimmed or off. Such an opportunity is likely while the attacker stands next to the GIPSB waiting to use the lavatory inside of the forward galley.

[0029] Most aircraft rely on the current inferior method of a flight attendant standing in front of the Flightdeck door to prevent unauthorized personnel from entering the cockpit. At times, a standard sustenance service trolley galley cart is also used in front (or behind) the flight attendant. There is also a reliance of government air marshals who are rarely on flights and when they are aboard, they cannot respond fast enough to an attacker sprinting and diving into the Flightdeck.

[0030] Between 2009 and 2011, the volunteer, non-profit organization, "Radio Technical Commission for Aeronautics" (RTCA) conducted a study and issued a report on Sep. 28, 2011 titled, "Aircraft Secondary Barriers and Alternative Flightdeck Security Procedures (RTCA DO-329)."

[0031] RTCA DO-329 concluded that not having a secondary barrier physically mounted or mechanically attached to the cabin could result in an attacker crashing an aircraft. The method of an aircrew member standing in front of a standard sustenance service trolley galley cart or no service trolley galley cart was defeated by padded-up role players who were likely unwilling to attack a simulated Flightdeck at full speed and strength and subject themselves to injury. The role-player U.S. Department of Homeland Security/Transportation Security Administration (TSA)/Federal Air Marshal Service (FAMS) Federal Air Marshals (FAM) also anticipated a sprint-dive-attack. FAMS in a real-world scenario are subjected to cabin noise, seat-belted, distracted with reading or watching video, or are taking an authorized nap.

[0032] The results of RTCA DO-329 were so disturbing, the TSA and the U.S. Department of Transportation/Federal Aviation Administration redacted the report and marked it as "SENSITIVE SECURITY INFORMATION."

[0033] Until Mar. 2, 2016, the unredacted RTCA DO-329 was withheld from TSA-FAMS Supervisory Federal Air Marshals in charge of field offices' training divisions, TSAFAMS trainers, and rank-and-file TSA FAMS who routinely fly protective missions while armed with firearms.

[0034] Four of the five role-player FAMS in the RTCA DO-329 study are supervisory or managerial FAMS, some of whom have since been promoted.

[0035] While the RTCA DO-329 invited air carrier representatives, and pilots and flight attendants union representatives, it did not invite any professional law enforcement non-union organizations who lobby on behalf of FAMS. Such organizations are the Fraternal Order of Police, the Federal Law Enforcement Officers Association, and the Air Marshal Association. FAMS cannot form common bargaining-unit unions that have contracts with U.S. Government agency senior leadership.

[0036] Due to human error, sometimes pilots exit and enter the Flightdeck without establishing any type of human or combination of human and standard sustenance galley cart barrier.

[0037] The RTCA DO-329 study concluded that an installed physical secondary barrier needs to only stop an attacker for at least five seconds so that a pilot can lock the reinforced Flightdeck door, begin emergency landing, and potentially armed himself/herself with a Federal Flightdeck

Officer firearm in its locked container in the case the attacker breaches both the barrier and the door.

Solution to Problem

[0038] Mobile Aircraft-Secondary-Barrier-Cart (MASBC), also known as Anti-Terrorist Anti-Personnel Mobile Commercial Passenger Aircraft Physical Secondary Barrier Forward Galley Cart, is 100% effective in stopping an attack on the Flightdeck and is exceptionally more inexpensive than the GIPSB.

[0039] As proven by the RTCA DO-329 study, a Flightdeck installed physical secondary barrier does not need to be impenetrable, it only needs to stop an attacker for at least five seconds which is long enough for the pilot to lock the reinforced Flightdeck door and quickly emergency land. If the attacker attempts to break down the MASBC and the reinforced Flightdeck door, enough time will have elapsed for the pilot to unlock a Federal Flightdeck Officer firearm's container, load it with ammunition, and have it ready for a Flightdeck breach.

[0040] The MASBC looks very similar to a standard sustenance service trolley galley cart except that it locks into the forward galley entrance, its top opens, inside is an expandable rigid or fabric/net barrier, the barrier then can be folded out (rigid) and/or hung up to (fabric/net) the top portion of the forward galley entrance.

[0041] A rigid barrier is more advantageous to a soft curtain non-porous given its ability to wedge into a female channel surrounding the forward galley/main cabin entrance. A rigid system would not require hooks, rings, and retracting cables for deployment and stowage.

[0042] A commercial aircraft forward galley/main cabin entrance can be replaced by a MASBC. In the event of a malfunction, the MASBC can be instantly replaced after landing. The MASBC will not only save on government armed air marshal deployment costs, but will 100% eliminate the danger to aircraft Flightdecks—also known as cockpits—during inflight Flightdeck entries or exits during flight. Employing MASBC's on aircraft would also substantiate allowing more FAMs to detect "lone-wolf attackers," and conduct IED prevention, counterterrorism, and insider—threat search activities in our mass-transit centers.

[0043] The MASBC system is considerably less expensive than the GIPSB's due to the fact that the cabin would only need minimal alteration. In some embodiments, the expandable rigid barriers would wedge into a female channel surrounding the forward galley/main cabin entrance and lock the MASBC into place. In other embodiments, the MASBC's barrier is a non-porous curtain that locks into the ceiling in ways familiar to one of ordinary skill in the art and as described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety.

[0044] Maintenance of the MASBC saves air carrier costs because it can be instantly replaced after landing without a technician, parts order, cabin repair, and the time needed to repair or replace a damaged or inoperable GIPSB.

[0045] The MASBC is stowed in the forward galley and cannot be damaged by passenger and equipment traffic.

[0046] The MASBC's main-housing can be an oval cylinder or rectangular box on wheels **150** (FIG. 1) with a hinged lid **130** that folds toward the Flightdeck when deployed.

[0047] The MASBC's main-housing can be made with a combination of firearms and/or IED resistant steel, high-grade polymer, alloy, and carbon-fiber.

[0048] FIG. 1 depicts a view from inside the forward galley when one embodiment of the rigid expandable panels MASBC is deployed and wedged into a female channel surrounding the forward galley/main cabin entrance. As shown in FIG. 1, when deployed the MASBC **100** is located between two bulkheads **105** of the aircraft from approximately the floor of the main cabin of the aircraft to approximately the ceiling of the main cabin of the aircraft. The MASBC has expandable rigid panels that wedge into a female channel **120** thereby making it exceptionally difficult for an attacker to tip the MASBC **100** over. The lower portion of the MASBC includes a main housing **135** and the main housing generally includes wheels **150** to easily move the MASBC for maintenance, stowage, and deployment. In upper portion of the MASBC may include a peep hole **140** to enable someone located on the cockpit side of the MASBC to see into the main cabin area. In some embodiments when deployed, the MASBC with rigid expandable panels may be locked into the aircraft or into the ceiling in ways familiar to one of ordinary skill in the art and as described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety. The lower portion of the MASBC may be held in place through the use of retractable cables attached to the aircraft and a ratcheting system as further described with respect to FIG. 3.

[0049] FIG. 1 also shows a panic-button **145** and the scuttle-wheel **115** that expands the panels into the female channels. As shown in FIG. 1, an embodiment of the MASBC **100**, may include rigid expandable panels **110** which may include a scuttle-wheel **115** on the forward galley side. The scuttle-wheel **115** may be used to expand the rigid panels **110** into a female channel **120**. The scuttle-wheel **115** may also be used to retract the panels for stowage. FIG. 1 also shows a foot pedal **125** which is further explained below. FIG. 1 shows a possible location for the rigid female channel MASBC system's **100**: wedged inside the main cabin and forward galley entrance.

[0050] FIG. 2 depicts a view from the passenger cabin (main cabin) when a second embodiment of a rigid expandable panels MASBC is deployed and wedged into a female channel **120** surrounding the forward galley/main cabin entrance. The MASBC **200** may also include one or more daylight and night-vision capable camera system **205** with a motion sensor that may wirelessly connect with a device viewable by one or more flight attendants and at least a second device viewable by one or more pilots. The lower portion of the MASBC may be held in place through the use of retractable cables attached to the aircraft and a ratcheting system as further described with respect to FIG. 3.

[0051] FIG. 3 depicts a view from the passenger cabin (main cabin) when a third embodiment, the non-porous soft curtain MASBC, is deployed. FIG. 3 shows the MASBC's folding-barrier may be made of soft non-porous curtain, which may be hung from the ceiling of the aircraft when deployed using ways familiar to one of ordinary skill in the art and as described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety. A Mobile Aircraft Secondary Barrier Cart may also include a main housing being in the form of a mobile barrier cart **300** (FIG. 3); at least two retractable

cables **305** attached to the main housing and configured to attach to at least two points **310** on an aircraft, at least one ratcheting system **315** configured to hold the main housing in place. When deployed, the curtain of the MASBC may be locked into the ceiling in ways familiar to one of ordinary skill in the art and as described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety.

[0052] The soft non-porous barrier is attached to the main housing. In one embodiment the soft non-porous barrier may attach to the bulkheads in ways familiar to one of ordinary skill in the art and as described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety. As shown in FIG. 3, the MASBC's main-housing is fastened into the aircraft's bulkhead **105**, therefore, making it exceptionally difficult for an attacker to tip the MASBC over like a standard sustenance service trolley carts used for the current method. The MASBC may include a panic button **145** covered with a protective hinged cover.

[0053] The non-porous soft curtain barrier MASBC main-housing may include a ratcheting system (as fully described in copending U.S. patent application Ser. No. 15/799,391 which is herein incorporated by reference in its entirety) in order to stabilize and strengthen the MASBC's stability after deployment. The ratcheting system is preferably on the backside of the MASBC facing the Flightdeck. The ratcheting system may have a release lever to disengage the MASBC before stowage.

[0054] In this embodiment, the expandable panels **110** which are attached to the top portion of the MASBC are held in place by the sides of the MASBC's curtain (or panels) sliding into tracks located on the bulkheads of the aircraft. In some embodiments, the panels are rigid and wedge into female channels surrounding the main cabin/forward galley entrance.

[0055] When more than one rigid panel is used, the rigid panels are capable of being tightly ratcheted together either with a ratcheting hand scuttle-wheel winch **115** or a foot-pedal winch **125** system. In some embodiments, the rigid panels can be unlocked for stowage with a lever (not shown) that can be engaged by either an aircrew member's hand or foot.

[0056] In the case that the ratcheting system malfunctions and cannot be disengaged, an emergency "T"-handle Hex Key tool may be attached to the Flightdeck door side of the MASBC's main-housing and can be used to release the ratcheting system's locking mechanism.

[0057] Preferably, when a soft curtain is used, the soft curtain MASBC ratcheting system should be concave for easier stowage.

[0058] Inside of the MASBC may be an attached folding-barrier made of firearms and explosive fragment resistant steel, alloy, ceramic, carbon fiber, polymer, clear Plexiglas, or a cloth-type curtain or a cloth-type net; the folded barrier may be a combination of the aforementioned materials.

[0059] A rigid MASBC folding-barrier has to be tall enough to prevent an attacker from diving over it and into an unlocked Flightdeck.

[0060] An air carrier has the option to request that the MASBC's folding-barrier be projectile-proof from firearms or an IED.

[0061] Due to the numerous different types of aircraft and cabin configurations, the size of the MASBC's main-housing and folding-barriers vary.

[0062] The MASBC main-housing's height should be a minimum of 100 cm and width of 25 cm.

[0063] When deployed, the MASBC has a panic-button **145** covered with a protective hinged cover on the side that faces the forward galley. The panic-button would allow a crewmember to engage a very loud electronic alarm so that the pilot can lock the Flightdeck and emergency land.

1. A Mobile Aircraft Secondary Barrier Cart comprising: a main housing being in the form of a mobile barrier cart; at least two retractable cables attached to said main housing and configured to attach to at least two points on an aircraft; at least one ratcheting system configured to hold said main housing in place; a curtain barrier designed to increase a height of said main housing when said curtain barrier is deployed; and at least two tracks installed on bulkheads of said aircraft wherein edges of said curtain barrier are inserted into said tracks to hold said curtain barrier in place.
2. The Mobile Aircraft Secondary Barrier Cart of claim 1 wherein said curtain barrier is resistant to explosives and small arms fire.
3. The Mobile Aircraft Secondary Barrier Cart of claim 1 wherein said curtain barrier comprises at least two panels; wherein said panels rise from said main housing and expand with the assistance of a spring-loaded deployment mechanism.
4. The Mobile Aircraft Secondary Barrier Cart of claim 3, wherein the spring-loaded mechanism is designed to be operated by 95% of active duty flight attendant wherein said active duty flight attendant is able to manually expand the panels up to the surrounding bulk-heads and ceiling of the aircraft cabin.
5. The Mobile Aircraft Secondary Barrier Cart of claim 1 wherein said MASBC meets the fortification standards mandated in Title 14 of the U.S. Code of Federal Regulations Section 25.795.
6. The Mobile Aircraft Secondary Barrier Cart of claim 1, wherein said curtain is a fragment-proof expandable and collapsible cloth-like soft material that is designed to be raised up from the main housing and locked into the ceiling and the bulk-head areas between the aircraft passenger cabin and forward galley.
7. The Mobile Aircraft Secondary Barrier Cart of claim 1, wherein the MASBC substantially encloses the main cabin/forward galley entrance with an opaque expandable and collapsible rising barrier system.
8. The Mobile Aircraft Secondary Barrier Cart of claim 1, wherein said MASBC has an expandable rigid barrier consisting of at least two firearms resistant panels.
9. The Mobile Aircraft Secondary Barrier Cart of claim 1, wherein said main housing unit contain systems that lock into attachments into the surrounding forward galley area bulk-heads.
10. The Mobile Aircraft Secondary Barrier Cart of claim 8, wherein said at least two expandable rigid barrier panels in which at least one edge of at least two rigid barrier panels wedge tightly into a female channel or V-channel built into the ceiling surrounding forward galley bulk-heads.
11. The Mobile Aircraft Secondary Barrier Cart of claim 8, wherein said at least two expandable rigid barrier panels

in which its edges have male extensions that lock into female inputs built into the surrounding forward galley bulk-heads.

12. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including at least one mechanical lock on a Flightdeck door.

13. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including at least one daylight and night-vision capable camera system that can wirelessly connect with a device viewable by at least one flight attendant and at least a second device viewable by at least one pilot.

14. The Mobile Aircraft Secondary Barrier Cart of claim **1**, wherein the viewable portion of said MASBC, when stowed, resembles a standard sustenance service trolley cart.

15. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including a security system which is capable of alerting a crew member if an unauthorized person attempts to tamper with said MASBC.

16. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including a motion-sensor configured to set off at least one of an audio and visual alarms if an individual person moves toward it while deployed.

17. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including a compartment containing at least one dose of Naloxone antidote also known as NARCAN® wherein said compartment is accessible under the top hatch of the main housing unit.

18. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including a hand scuttle-wheel located at the upper portion of said MASBC.

19. The Mobile Aircraft Secondary Barrier Cart of claim **1**, further including at least one of a panic-button, a wireless smartphone or tablet, or any other built-in systems which are wirelessly connected to any of the aircraft's available networks that communicate with ground control and configured to manually or automatically sent a message to ground-control.

20. The Mobile Aircraft Secondary Barrier Cart of claim **10**, wherein the rigid panels are capable of being tightly ratcheted together either with a ratcheting hand scuttle-wheel winch or a foot-pedal winch system and wherein the rigid panels can be unlocked for stowage with a lever that can be engaged by either an aircrew member's hand or foot.

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Table with 2 columns: EXAMINER (RODDEN, JOSHUA E), ART UNIT (3649), PAPER NUMBER (9251)

DATE MAILED: 09/29/2020

Table with 5 columns: APPLICATION NO. (16/836,842), FILING DATE (03/31/2020), FIRST NAMED INVENTOR (Robert James MACLEAN), ATTORNEY DOCKET NO. (RM1010.002), CONFIRMATION NO. (9251)

TITLE OF INVENTION: Mobile Aircraft Secondary Barrier Cart

Table with 7 columns: APPLN. TYPE (nonprovisional), ENTITY STATUS (MICRO), ISSUE FEE DUE (\$250), PUBLICATION FEE DUE (\$0.00), PREV. PAID ISSUE FEE (\$0.00), TOTAL FEE(S) DUE (\$250), DATE DUE (12/29/2020)

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II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

15979 7590 09/29/2020
Steven M. War
McNeely, Hare & War LLP
5335 Wisconsin Ave, NW, Suite 440
Washington, DC 20015

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/836,842	03/31/2020	Robert James MACLEAN	RM1010.002	9251

TITLE OF INVENTION: **Mobile Aircraft Secondary Barrier Cart**

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	MICRO	\$250	\$0.00	\$0.00	\$250	12/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
RODDEN, JOSHUA E	3649	244-121000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1</p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2</p> <p>_____ 3</p>
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent) : Individual Corporation or other private group entity Government

4a. Fees submitted: Issue Fee Publication Fee (if required) Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

Electronic Payment via EFS-Web Enclosed check Non-electronic payment by credit card (Attach form PTO-2038)

The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

- Applicant certifying micro entity status. See 37 CFR 1.29
- Applicant asserting small entity status. See 37 CFR 1.27
- Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 16/836,842, 03/31/2020, Robert James MACLEAN, RM1010.002, 9251
Row 2: 15979, 7590, 09/29/2020, Steven M. War, McNeely, Hare & War LLP, 5335 Wisconsin Ave, NW, Suite 440, Washington, DC 20015
Row 3: EXAMINER RODDEN, JOSHUA E
Row 4: ART UNIT 3649, PAPER NUMBER

DATE MAILED: 09/29/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.