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(54) Titre : DISPOSITIF DE RANGEMENT SOUS LE SIEGE POUR APPAREILS ELECTRONIQUES PERSONNELS
(54) Title: UNDERSEAT STOWAGE DEVICE FOR PERSONAL ELECTRONIC DEVICES

(57) Abrégé/Abstract:
A support for equipment associated with a passenger seat assembly mounted to a floor in a passenger cabin. The support having a base adapted to anchor to two seat tracks in the cabin floor with a post extending upwardly from the base. Individual support arms each have a proximal end mounted to the base and a distal end with an equipment mount. Each arm has independent deployment transferring the associated arm from a stowed position under an associated passenger seat and a deployed position extending upwardly from the post.

ABSTRACT

A support for equipment associated with a passenger seat assembly mounted to a floor in a passenger cabin. The support having a base adapted to anchor to two seat tracks in the cabin floor with a post extending upwardly from the base. Individual support arms each have a proximal end mounted to the base and a distal end with an equipment mount. Each arm has independent deployment transferring the associated arm from a stowed position under an associated passenger seat and a deployed position extending upwardly from the post.

UNDERSEAT STOWAGE DEVICE FOR PERSONAL ELECTRONIC DEVICES

TECHNICAL FIELD

[0001] The invention relates to a support for passenger use personal electronic devices in an aircraft cabin mounted to the cabin floor within the seat tracks and stowed under the passenger seat.

BACKGROUND OF THE ART

[0002] Aircraft passenger cabins are currently constructed or are being retrofit with a wide assortment of personal electronic devices with entertainment options accessible from the passenger seat. To improve service and make the flight more enjoyable or productive, airlines may provide audio and video entertainment, telephone, intercom, television, video games, internet, email and electrical power supply for laptop computers, especially in business class and first class cabins thus permitting passengers to work during the flight, to communicate or to be entertained without leaving their seat or disturbing other passengers.

[0003] Passenger entertainment systems such as seat mounted flat screen video monitors, and credit card activated cellular telephones are now commonly mounted in the seat backs and seat arm rests of passenger aircraft. Some airlines also distribute compact personal DVD players with a choice of movies, or personal audio CD players in first class and business class cabins. Passengers may carry their own laptop computers or CD players and seek power

outlets to preserve batteries and extend use during long flights.

[0004] Within the confines of a passenger seat fitted with a conventional food service tray table, use of such entertainment and personal electronic equipment creates conflicts with the food and beverage service in an aircraft cabin. The available space is often inadequate, the electrical equipment is exposed to spillage of beverages, and equipment may be damaged after sliding off the tray table on to the cabin floor.

[0005] Given existing aircraft cabins and seating arrangements, conventionally it has been considered necessary to fit all such equipment within the passenger seat itself. Armrests and seat backs are built with compartments for such purposes adding to the cost of the seats and requiring regulatory approval since the weight, centre of gravity and performance during a crash could be effected by adding the weight of equipment or modifying the seat frame structure. Airlines desiring to upgrade service by providing electric power, entertainment and personal electronic device capacity are faced with the problem of replacing expensive passenger seats before their service life has ended and submitting new designs for regulatory approval, both of which consume significant time and money.

[0006] Conventionally, passenger seat units are often fitted with power sources, entertainment and personal electronic system units that are mounted in armrests, in consoles, in the seat back or under the seat as an interim measure.

[0007] It is an object of the present invention to separate the provision of personal electronic devices entirely from the passenger seats.

[0008] It is a further object of the invention to provide a compact foldable support that stows personal electronic devices on an arm that rotates from under the seat thereby relieving the passenger seats of the need to be redesigned or retrofit to accommodate entertainment or personal electronic functions.

[0009] Further objects of the invention will be apparent from review of the disclosure, drawings and description of the invention below.

DISCLOSURE OF THE INVENTION

[0010] The invention provides a support for equipment associated with a passenger seat assembly mounted to a floor in a passenger cabin. The support having a base adapted to anchor to two seat tracks in the cabin floor with a post extending upwardly from the base. Individual support arms each have a proximal end mounted to the base and a distal end with an equipment mount. Each arm has independent deployment transferring the associated arm from a stowed position under an associated passenger seat and a deployed position extending upwardly from the post.

[0011] A significant benefit of the invention is that existing seats or existing seat designs need not be changed in order to accommodate newly added services, such as personal video entertainment, laptop computer power,

virtual reality video games, email, internet capacity or other such entertainment and personal electronic services within the confines of the immediate passenger airline seat area. The invention provides a completely independent stand alone support that is independently supported within the seat tracks of the cabin floor to support various devices such as flat screen video monitors or DVD players as well as accommodating power source cables and receptacles in a compact foldable unit that stows under the seat.

[0012] Therefore, it is no longer necessary for airlines to consider replacing existing seats in the passenger cabin or purchasing newer more expensive seat designs nor for modifications to the seats to require testing and regulatory approval in order to provide personal electronic services to the passengers. The invention provides an independent stand-alone support unit for electrical components, which can be modified to support any such entertainment or personal electronic device.

[0013] A further advantage of the invention is the flexibility of design that aircraft operators can achieve through complete separation of the seating function and the entertainment or personal electronic function within the cabin. More particularly, the seats can be designed for maximum safety, service life and passenger comfort without premature replacement. Seats can be used throughout their entire functional operating life without considering upgrades or modification to the entertainment or personal electronic systems. Audio and video signals can be

conveyed to the independent support that houses video displays for example and includes receptacles or jacks for headphones completely independently of the seat. The airline operator can quickly reconfigure the cabin (for charters, long haul or short commuter flights), adding or removing entertainment or personal electronic services by simply installing or removing the independent support unit. Seats need not be modified at all unless the seat pitch is to be changed.

[0014] In contrast, seat designs that require modification to include fold up video display monitors or additional audio equipment for example often suffer from a change in the seat's centre of gravity or from other structural modifications to the seats to accommodate the added equipment. Any such change requires significant regulatory approval or testing since the seat and lap belt are safety features of the aircraft in any crash scenario. The primary functions of the seats are to provide comfort and safety and therefore any modification requires approval to ensure that there has been no compromise of structural integrity or safety features.

[0015] Further, airlines often acquire aircraft from other airlines through mergers or purchases and require that all of their aircraft provide a consistent level of passenger service throughout the fleet. In such circumstances, retrofitting of passenger seats to accommodate entertainment and personal electronic devices may be a costly exercise. The invention provides a simple solution enabling retrofitting of existing aircraft or reconfiguring

of aircraft with a rapid turn around. For example, entertainment and personal electronic devices are usually more desirable on long haul flights while use of the same aircraft for commuter flights places a premium on cabin space and number of passengers per aircraft. Reconfiguration to provide such services is relatively simple when the invention is used since the independent supports may be installed and removed very quickly to reconfigure the aircraft, whereas conventional reconfiguration involves removing and replacing the entire seat assembly.

DESCRIPTION OF THE DRAWINGS

[0016] In order that the invention may be readily understood, one embodiment of the invention is illustrated by way of example in the accompanying drawings.

[0017] Figure 1 shows a front perspective view of a three passenger seat assembly with the invention provided spanning between the two seat tracks with an equipment supporting arm extending upwardly on three arms that can be individually folded and rotated downwardly in a stowed position under the seats.

[0018] Further details of the invention and its advantages will be apparent from the detailed description included below.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0019] Referring to Figure 1, a support 1 for personal electronic devices 2 is shown mounted to seat tracks 3 independently of the associated seat assembly 4. In the embodiment shown, the seat assembly 4 has three passenger seats 5 on a common base with seat legs 6 mounted to the seat tracks 3 in a conventional manner. Two to five or more seats 5 can be accommodated in a like manner.

[0020] Completely independently of the seat assembly 4 and mounting of the seat legs 6 in the seat track 3 is the support 1 which includes a base 7 adapted to anchor to the two seat tracks 3 in the cabin flour of the aircraft cabin. The base 7 includes two mounting brackets 8 each adapted to engage the associated parallel seat track 3. Extending upwardly from the mounting bracket 8 of the base 7 is a post 9. A beam 10 expands between the upward end of each post 9 and rotatably supports three arms 11.

[0021] Each arm 11 can be independently deployed from the stowed position shown on the left of Figure 1 (under the associated passenger seat 5 and to a deployed position extending upwardly from the post 9. In the embodiment shown, the base 7 is adapted for disposition between the seat legs 6, however depending on the orientation of seat legs 6, the base 7 may be positioned anywhere along the seat track 3.

[0022] The arm 11 may include a telescoping portion to raise and lower the equipment mount 12 and attached personal electronic device 2 as indicated in arrows on the right

side of Figure 1. Further, the equipment mount 12 is rotatably connected at pivot joint 13 to a distal end of the arm 11 so that the personal electronic device 2 can be flipped downwardly as indicated in the left portion of Figure 1 and then rotated about the lower end of the arm 11 on beam 10 to an under seat stowed position.

[0023] In order to power the personal electronic device 2 and avoid unsightly cables, preferably the arm 11 is hollow or includes a cable raceway enclosing cables extending between the base 7 and a top portion of the arm 11. The beam 10 may also be hollow and include a cable raceway. Any wires and cables can extend under the cabin floor or under the carpet in cable raceways within the floor through mounting bracket and up post 9 through the beam 10 and into arms 11. Also preferably, the arms 11 can include a receptacle in communication with cables for providing auxiliary power, headphones jacks or other types of receptacles and consoles.

[0024] Although the above description relates to a specific preferred embodiment as presently contemplated by the inventor, it will be understood that the invention in its broad aspect includes mechanical and functional equivalents of the elements described herein.

I CLAIM:

1. A support for equipment associated with a seat assembly comprising a plurality of passenger seats mounted to a floor in a passenger cabin, the support comprising:

a base adapted to anchor to two seat tracks in a cabin floor, the base including a post extending upwardly from the base; and

a plurality of support arms, each with a proximal end mounted to said base and a distal end including an equipment mount, each arm having independent deployment means for transferring the associated arm from a stowed position under an associated passenger seat and a deployed position extending upwardly from said post.

2. A support according to claim 1 wherein the base includes two mounting brackets each adapted to engage an associated seat track, two posts each extending upwardly from an associated mounting bracket, and a beam spanning between said posts, wherein each support arm is mounted to said beam.

3. A support according to claim 2 wherein the passenger seat assembly includes legs mounted to the seat tracks, and wherein the base is adapted for disposition between said legs.

4. A support according to claim 1 wherein the arms are rotatably mounted to said beam.

5. A support according to claim 1 wherein the arm includes a telescoping portion.

6. A support according to claim 1 wherein the equipment mount is rotatably connected to a distal end of the arm.

7. A support according to claim 1 wherein the arm includes a cable raceway housing a cable between the base and a top portion of the arm.

8. A support according to claim 7 wherein the top portion of the post includes a receptacle in communication with said cable.

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Figures: 1

Pages:

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