



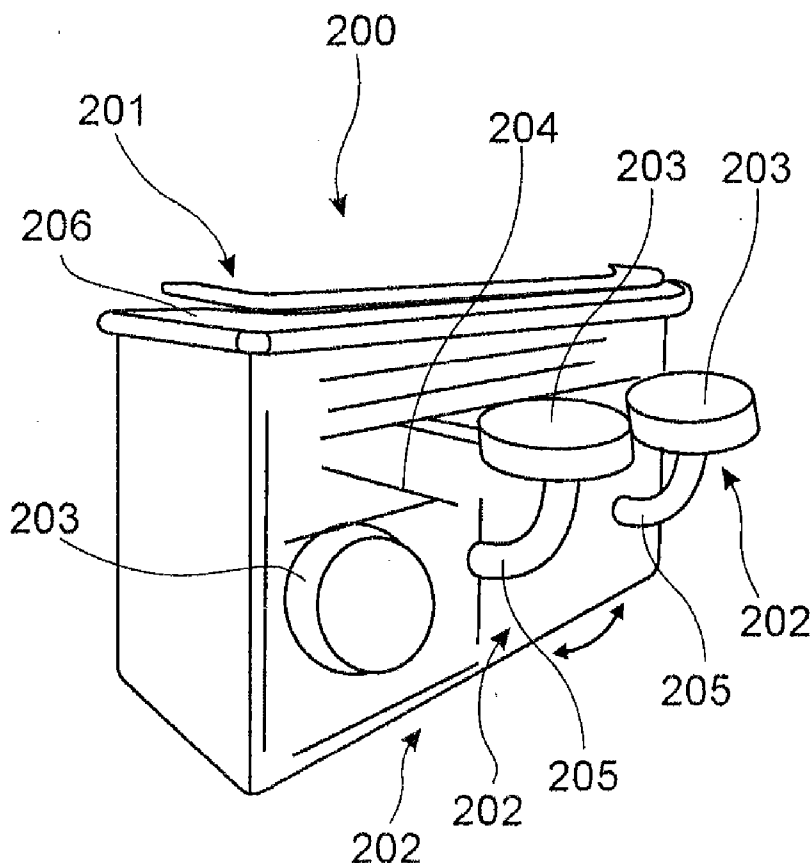
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(19) **United States**(12) **Patent Application Publication**
Humfeldt et al.(10) **Pub. No.: US 2007/0046078 A1**(43) **Pub. Date: Mar. 1, 2007**(54) **STOWAGE OF BARSTOOL(S) BY
MECHANICAL MOVEMENT OF THE
BARSTOOL(S) ON BAR COUNTERS IN AN
AIRCRAFT CABIN****Related U.S. Application Data**(60) Provisional application No. 60/695,258, filed on Jun.
30, 2005.(30) **Foreign Application Priority Data**

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TAMPA, FL 33602 (US)(51) **Int. Cl.**
A47B 83/02 (2006.01)
(52) **U.S. Cl.** **297/142**(57) **ABSTRACT**

A barstool comprising a seating unit and an extension or insertion unit or both, wherein the seating unit is coupled with the extension or insertion unit or both such that the extension or insertion unit or both may be used to stow and extend the seating unit relative to a wall portion of a bar counter by inserting or pivoting the extension or insertion unit or both.

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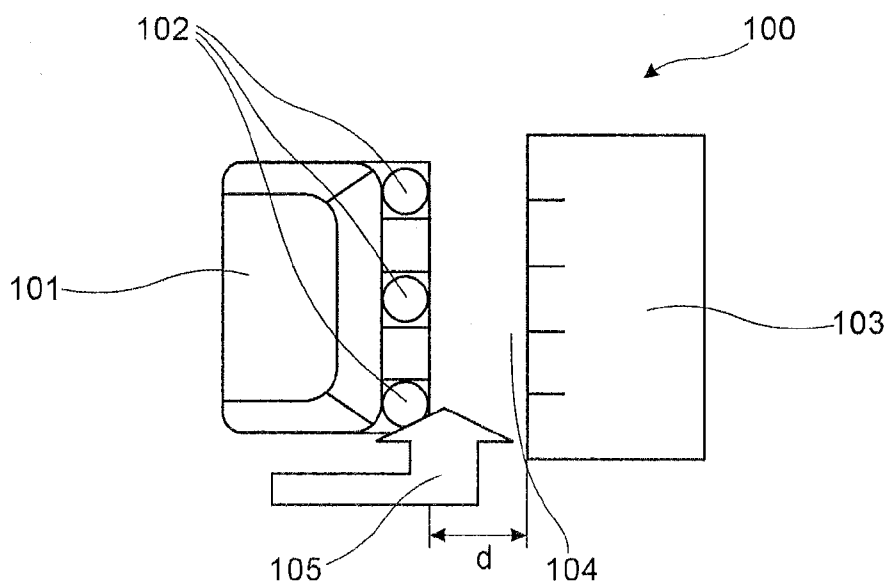


Fig. 1

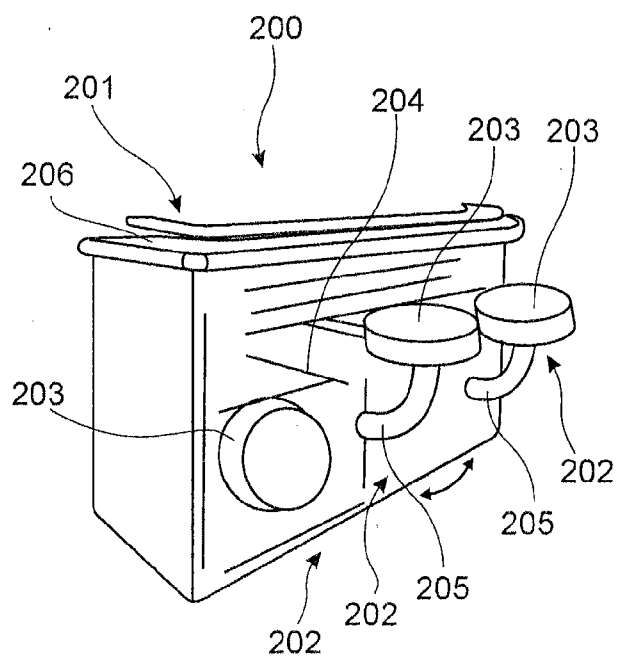


Fig. 2

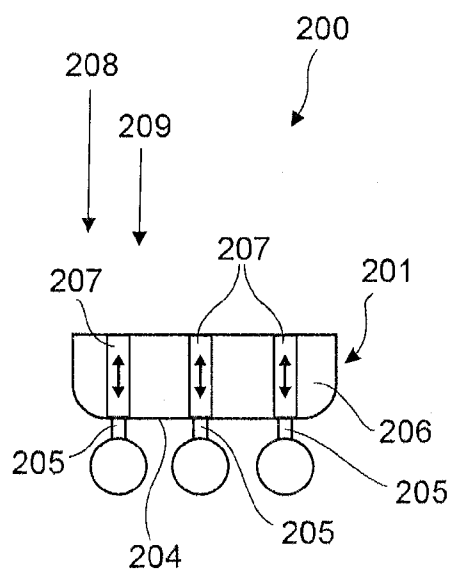


Fig. 3

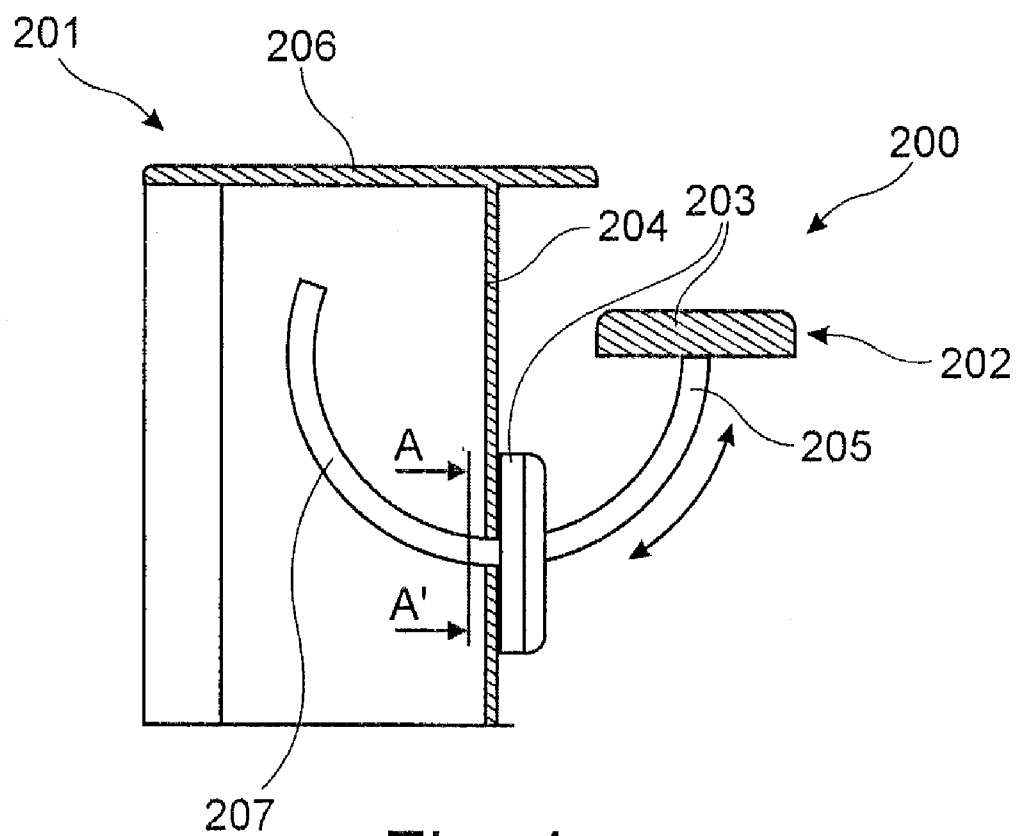


Fig. 4

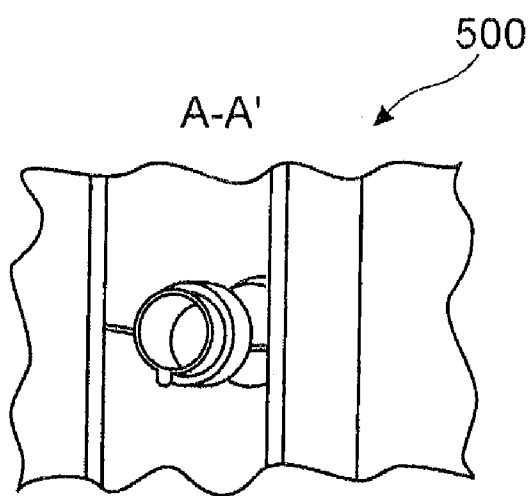
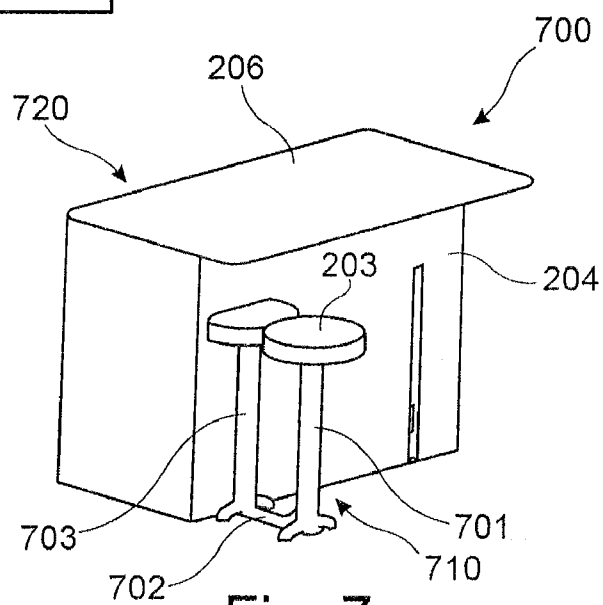
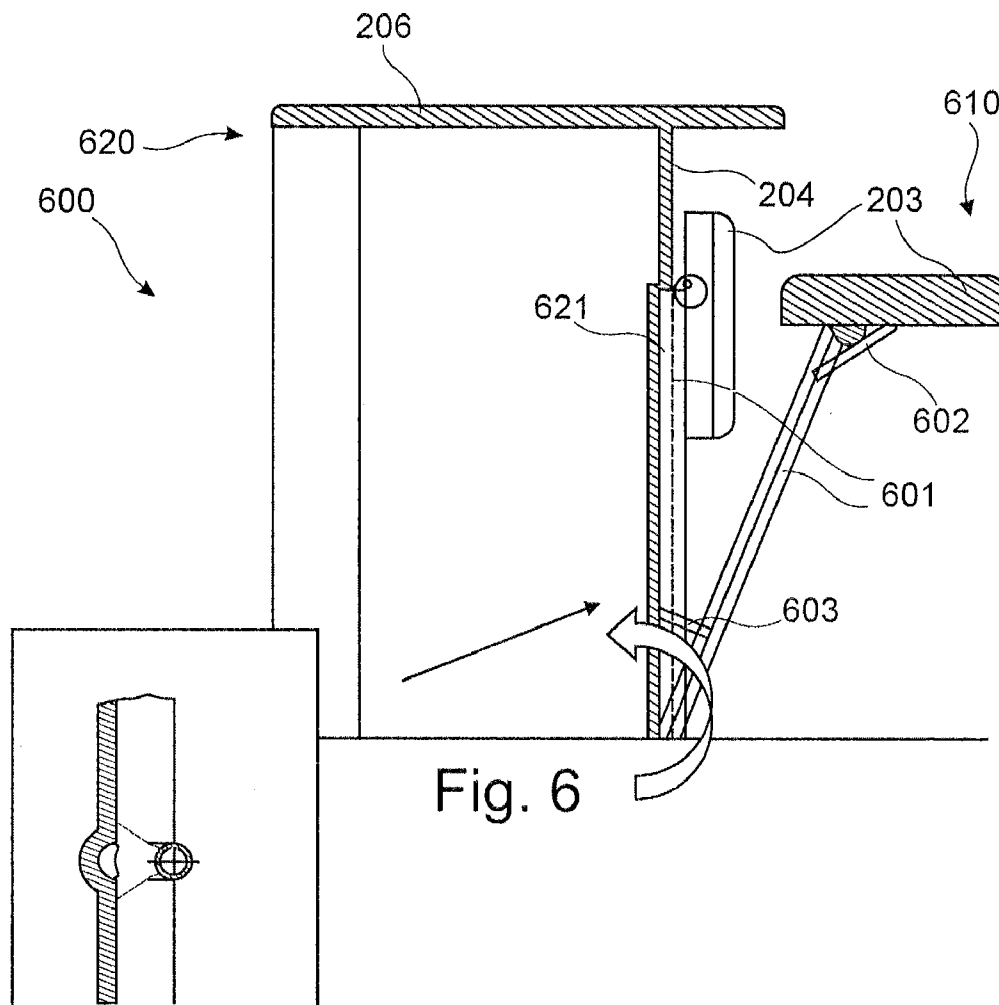
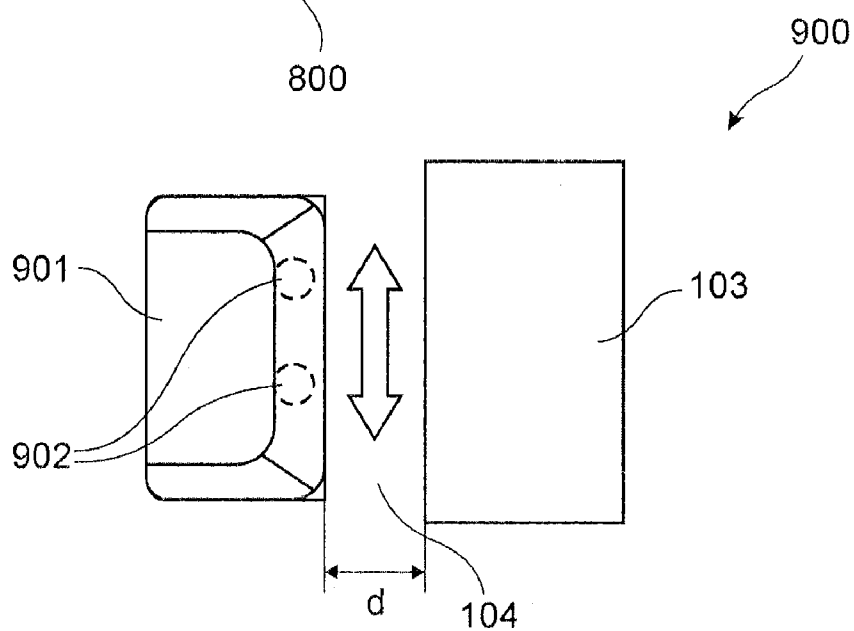
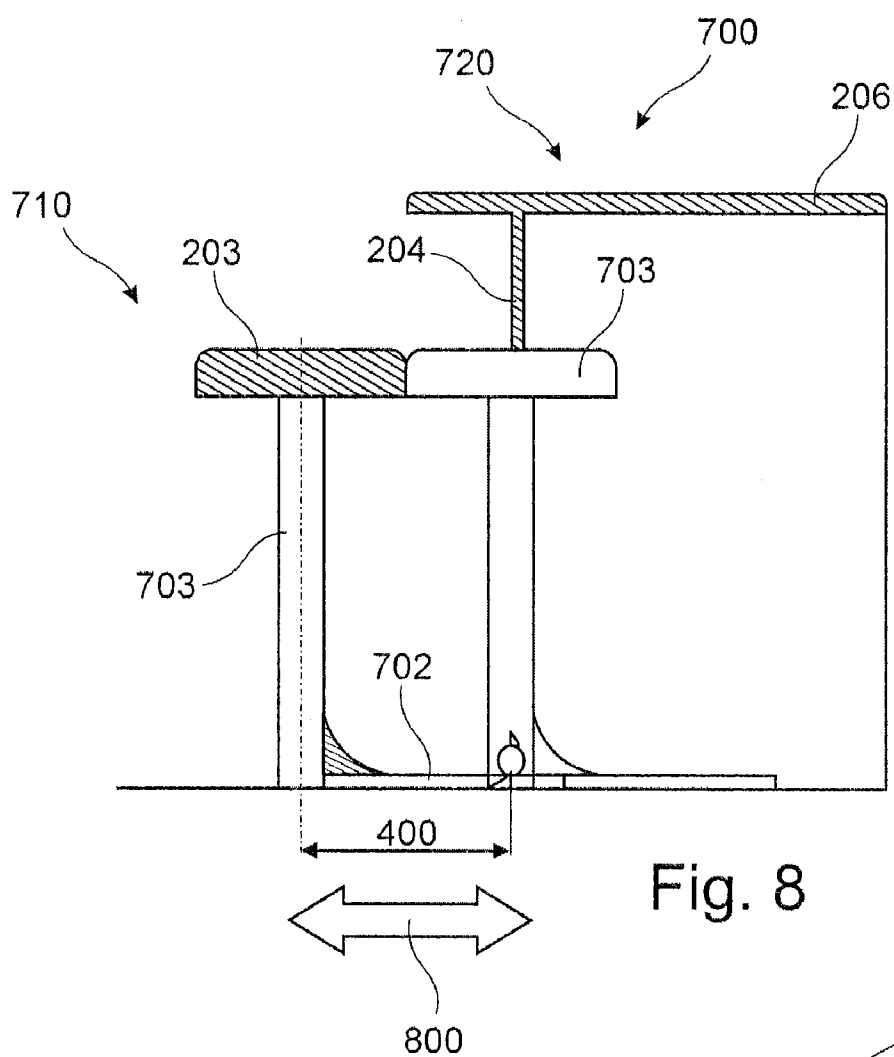


Fig. 5





STOWAGE OF BARSTOOL(S) BY MECHANICAL MOVEMENT OF THE BARSTOOL(S) ON BAR COUNTERS IN AN AIRCRAFT CABIN

CROSS-RELATED APPLICATION

[0001] This application claims the benefit of the filing date of German Patent Application No. 10 2005 030 569.5 filed Jun. 30, 2005 and of U.S. Provisional Patent Application No. 60/695,258 filed Jun. 30, 2005, the disclosure of which is hereby incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The field relates to a barstool, a bar counter, a bar arrangement, an aircraft, and the use of a barstool in an aircraft.

TECHNOLOGICAL BACKGROUND

[0003] Conventional barstools are installed separately from the bar counter. Such barstools are either securely anchored on or in the floor, or may be moved along the floor and are provided separately from the bar counter.

SUMMARY OF THE INVENTION

[0004] There may be a need to provide an improved bar arrangement.

[0005] An embodiment of the invention provides for a barstool comprising a seating unit and an extension and/or insertion unit. The seating unit is coupled with the extension and/or insertion unit in such a way that the extension or the insertion unit or both such that the seating unit may be used to selectively stow the seating unit and/or in a bar counter or extend it relative to the bar counter (or opposite the bar counter).

[0006] In another example, the barstool for use with a bar counter has a wall portion extending downward from the bar counter and includes an extension or insertion unit or both; and a seating unit. The seating unit is coupled with the extension or insertion unit or both such that the seating unit is stowable and extendable by moving the seating unit relative to the wall portion of the bar counter by inserting or pivoting the extension or insertion unit or both.

[0007] In one example, a bar counter comprising a receiving unit, wherein the receiving unit is adapted in such a way that it may selectively incorporate a barstool, or the barstool may be extended from the receiving unit relative to the bar counter.

[0008] In one example, a bar arrangement comprising a barstool with the features described above and a bar counter with the features described above.

[0009] In one example, an aircraft that has a barstool with the features described above and/or a bar counter with the features described above.

[0010] In addition, another embodiment of the invention makes use of a barstool with the features described above and/or a bar counter with the features described above in an aircraft.

[0011] Within the framework of this application, an "extension and/or insertion unit" may be understood in particular as a mechanism with which a barstool may be

transported up to or into a bar counter, and with which the barstool may be moved out of the bar counter, so as to enable a user or the cabin crew to selectively stow the barstool on and/or in the bar counter, or use the barstool and/or release it for use as intended. Such a mechanism may be purely mechanical in design, i.e., the user uses his/her muscles to actuate or operate it, if necessary assisted by spring resistance or the like. However, such a mechanism may also be electrical, e.g., powered by an electric motor, which may be activated by a user to extend or retract the barstool. The extension and/or insertion unit may also be automatically operated, however, so that the bar may automatically be moved into an "extended" or "retracted" state once a sensor has acquired a sensor signal, for example. For example, such a sensor signal may depend on which operating state (boarding, start, flight, landing, taxiing, emergency, etc.) an aircraft having the bar happens to be in.

[0012] In one aspect of the invention, an arrangement comprising a barstool and a bar counter is adapted in such a way that the barstool may be brought into a first operating state, in which the barstool may be used by a user to sit down on, or may be brought into a second operating state, in which the seating unit is stowed, in particular integrated, into the bar counter.

[0013] Therefore, a barstool may be stowed according to one embodiment of invention by a mechanical motion of the barstool on the bar counter in an aircraft cabin. This allows the useable space in an aircraft cabin to increase. Dangers associated with evacuation conditions may be avoided.

[0014] In addition, the barstool may be simply moved out of the bar counter in an operating state involving the use of the bar arrangement according to one example of the invention. By contrast, the barstool may be stowed in the bar counter during takeoff, landing and taxi operations to avoid the danger of injuries to passengers and crew. The barstool may also be stowed in the bar counter while passengers are entering (boarding) an aircraft to shorten boarding times.

[0015] Obtained as a result is a cabin layout with a bar. The bar may have a movably integrated barstool. In contrast to a configuration in which counters, permanently installed barstools, escape route and monument are arranged side by side in an aircraft aisle, the configuration according to one example of the invention saves on space with movable barstools. Barstools that border escape routes may be regarded as a potential obstacle in case of evacuation. In the configuration according to one example of the invention, a barstool may simply be stowed in a bar counter in such a scenario, thereby enabling a space-saving configuration and reliable operation in cases of emergency.

[0016] The movably integrated barstool may serve as a seat for aircraft passengers during bar operation, e.g., nearly at standing level of a user. To this extent, the barstool according to one example of the invention may be similar in design to barstools outside the preferred application in an aircraft. In an embodiment of the invention, the barstool is joined with the bar counter, and may be physically lowered, and hence stowed, in the counter in a movement (e.g., initiated by a corresponding operation). For example, the cabin crew may perform this action. Hence, bar operation may be opened and closed by the crew.

[0017] In particular, the barstool according to one example of the invention functions as temporary seating, whose use may be precluded, for example, in times of takeoff, turbulence or landing.

[0018] Embodiments of the barstool will be described below. These embodiments also apply to the bar counter, the bar arrangement, the aircraft and use.

[0019] The extension and/or insertion unit (in particular movement of the extension and/or insertion unit) may be used to selectively stow the seating unit on and/or in a vertical wall of the bar counter, or move it out relative to the vertical wall. The bar counter may have a tabletop and a wall substantially perpendicular, in which the barstool may be at least partially integrated. For example, the tabletop may project somewhat relative to the vertical wall, so that a user may comfortably use the bar counter and simultaneously put his legs under the table.

[0020] The barstool may have a carrier arm that may be arranged between the extension and/or insertion unit or both on the one hand, and the seating unit on the other. In one example, such a carrier arm is coupled with the extension and/or insertion unit and a seating unit, and may therefore enable a transfer of force between the extension and/or insertion unit and seating unit, and further be used to support a user located on the seating unit.

[0021] The extension and/or insertion device may be used to stow the carrier arm inside the bar counter, and stow the seating unit directly on the vertical wall of the bar counter. In other words, the carrier arm may be moved into the bar counter and accommodated therein, whereas the link between the extension and/or insertion device, carrier arm and seating unit makes it possible to also stow the seating unit close to the bar counter or inside the bar counter. For example, a corresponding recess may also be provided in the vertical wall of the bar counter for accommodating the seating unit. The vertical wall with incorporated seating unit then forms an essentially flush or flat end.

[0022] The carrier arm may be provided to be curved. For example, the carrier arm may have a circular brace, e.g., a 90° circular segment brace. As a result, the carrier arm may be rotated so as to stow it in a corresponding recess of the bar counter in a space saving manner.

[0023] In an alternative embodiment of the invention, the extension and/or insertion unit may be moved in such a way that the carrier arm may be folded over and stowed up against the vertical wall of the bar counter. In other words, the carrier arm according to this embodiment may be provided as a swiveling arm or swiveling brace, which may be pivoted around a fulcrum, wherein the fulcrum may be arranged on a lower end section of the vertical lateral wall, for example. Then, the carrier arm may be flipped up against the vertical wall simply by rotating or folding the carrier arm using the extension and/or insertion unit (e.g., using a hinge and/or an electric drive).

[0024] The extension and/or insertion unit may be used to stow the seating unit against the vertical wall of the bar counter in a foldable manner. Since the seating surface of the barstool is substantially parallel to the tabletop of the counter when in use, it may be advantageous to save space when inserting the barstool to rotate the seating surface in

such a way as to align it substantially parallel to and abutting the vertical wall of the barstool.

[0025] The carrier arm and seating unit may be folded independently of each other. As a result, only the carrier arm, but not the seating unit, or only the seating unit, but not the carrier arm, may be folded.

[0026] In another embodiment of the invention, the extension and/or insertion unit may be moved to simultaneously fold the carrier arm along a first tilting axis, and fold the seating unit along a second tilting axis, so that the carrier arm and seating unit may be stowed together by way of a single folding motion, both directly abutting the vertical wall of the bar counter. Therefore, the carrier arm and seating unit may be folded simultaneously in this embodiment, thereby making it possible to set a desired operating state in a particularly easy and time-saving manner. In other words, the mechanisms for folding the carrier arm and seating unit may be coupled together.

[0027] In another embodiment of the invention, the extension and/or insertion unit may be moved to shift the carrier arm and the seating unit towards the bar counter. According to this embodiment, the carrier arm and the seating unit may be rigidly connected to one another and may be shifted in a translative manner in a horizontal direction by a force transmitting shifting arm linearly or using a rotation, so that the carrier arm and the seat unit may be approached to the bar counter and may be finally stowed therein at least partially.

[0028] In an embodiment of the invention, the extension and/or insertion unit may be moved to shiftably stow the carrier arm and seating unit at least partially inside the bar counter. Therefore, the barstool may be integrated into the bar counter.

[0029] For example, the carrier arm is rectilinear. This makes it possible to adjust a sufficiently high seating position.

[0030] In addition, the barstool may have a locking mechanism for locking the barstool (e.g., the seating unit and/or the carrier element) to the bar counter (e.g., at the tabletop and/or the vertical wall). For example, if the seating unit and/or the carrier arm individually or together abut the bar counter, e.g., the vertical lateral wall, a mechanical, magnetic or electrical lock may be used to produce a stable configuration, so that the barstool is stowed on or in the bar counter. This increases operational reliability, which is especially advantageous for applications in an aircraft, and may entail very special advantages in the aircraft given turbulence.

[0031] In addition, the seating unit of the barstool may have a substantially round or substantially cylindrical seating surface. A substantially round seating surface allows the user to freely perceive his direction of orientation when using the seating unit in roughly any position within a 360° circle. As a result, such a round seating surface is particularly advantageous for use in a bar on an aircraft, since a user may freely turn on the seat and flexibly look in a desired direction, e.g., at the person he/she is talking to.

[0032] As an alternative, the seating unit may have a substantially cylindrical seating surface. This enables an especially space-saving accommodation of the seating unit

under a tabletop, wherein the user may use the cylinder or roll to sit down on the seating unit.

[0033] In addition, the barstool may have an actuator element, wherein the extension and/or insertion unit may be activated by enabling the actuator. In particular, the seating unit may be selectively stowed on and/or in the bar counter or moved out relative to the bar counter by enabling the actuator element. The actuator element may be a purely mechanical actuator element, or an electrical actuator element, with which the components in the barstool may be mechanically moved using a motor, such as an electric motor. The actuator element may be limited in terms of usability in various operating states of an aircraft that accommodates the barstool. For example, use of the actuator element may be automatically precluded during takeoff and landing, and in the event of turbulence. It is also possible to connect the actuator element with a detector, which determines whether a specific operating state, e.g., an emergency, is on hand, and upon detecting an emergency situation, automatically retracts the barstool to keep escape paths clear.

[0034] Embodiments of the bar counter will be described below. These embodiments also apply to the barstool, the bar arrangement, the aircraft and the use.

[0035] The receiving unit may be arranged at a vertical lateral wall of the bar counter, or be provided as a recess in a vertical lateral wall of the bar counter. This again permits a space-saving accommodation of barstools on/in the bar counter, wherein a particularly space-saving configuration involves completely receiving the barstool within the bar counter in a correspondingly designed recess. Further, the bar counter may have a tabletop.

[0036] Embodiments of the invention are shown on the figures, and will be explained in greater detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] The drawings provide specific examples of the invention, but the invention should not be limited merely to the examples disclosed. Instead, the invention should be limited only by the claims that may eventually issue. Many variations in the invention, changes in specific components of the invention and uses of the invention will be readily apparent to those familiar with the field of the invention based on the drawings and description provided.

[0038] FIG. 1 is one example of the invention;

[0039] FIG. 2 is a three-dimensional view of one example of the invention;

[0040] FIG. 3 is a top view of one example of the invention from FIG. 2;

[0041] FIG. 4 is a cross sectional view of one example of the invention from FIG. 2;

[0042] FIG. 5 shows a partial view along a cutting line A-A' shown on FIG. 4;

[0043] FIG. 6 is another example of the invention;

[0044] FIG. 7 is another example of the invention;

[0045] FIG. 8 is a cross sectional view of another example of the invention from FIG. 7;

[0046] FIG. 9 is a plan view of another example of the invention.

DETAILED DESCRIPTION

[0047] Identical or similar components in varying figures are marked with the same reference numbers.

[0048] The illustrations in the figures are diagrammatic and not to scale.

[0049] A bar arrangement 100 will be described below with reference to FIG. 1.

[0050] The bar arrangement 100 contains a bar counter 101 and a plurality of barstools 102. The barstools 102 are permanently installed in the floor separately from the bar counters 101. Also shown on FIG. 1 is a monument 103, which is separated from the barstools 102 by an aisle 104. Further denoted is an escape route 105 for evacuating aircraft passengers in case of an emergency. A minimum aisle width "d" should not dip below the official requirements. Since the barstools 102 are permanently installed in the floor in the arrangement according to FIG. 1, the barstools 102 could impede escape route 104 in case of an emergency. A bar arrangement 200 according to an embodiment of the invention will be described below drawing reference to FIG. 2. The bar arrangement 200 comprises a bar counter 201 and a plurality of barstools 202.

[0051] In this example, each barstool 202 comprises a circular seating unit 203 and an extension and/or insertion unit, i.e., a mechanism for extending the barstool 202, which is provided inside the bar counter 201 according to the embodiment on FIG. 2. The seating units 203 are coupled with this extension and/or insertion unit in such a way that the respective seating unit 203 may be selective stowed on and/or in the bar counter 201 or moved out relative to the bar counter 201 by moving the extension and/or insertion unit.

[0052] A barstool 202 shown to the left on FIG. 2 is in an operating state in which the circular seating surface 203 directly stows against a wall 204 of the bar counter 201, such that the left barstool 202 is stowed saving space up against the bar counter 201. The other two barstools 202 shown in the middle and to the right on FIG. 2 are extended, such that the seating surfaces 203 are arranged to accommodate a seated user, extending outward from the wall 204 of the bar counter 201.

[0053] Therefore, each of the seating units 203 may be selectively stowed against the wall 204 of the bar counter 201 or moved out relative to the wall 204 by moving the curved carrier arm 205 into or away from the substantially vertical wall 204 of the bar counter 201. Each of the curved carrier arms 205 may be coupled to an extension and/or insertion mechanism 208 arranged inside the bar counter 201, which is represented schematically. The curved carrier arm 205 may be stowed inside the bar counter 201 and the seating surfaces 203 may be stowed up against the vertical wall 204 of the bar counter by activating the extension and/or insertion mechanism 208.

[0054] FIG. 2 shows an embodiment with a stool leg 205 that may be rotated out.

[0055] FIG. 3 shows a top view of a bar arrangement 200 from FIG. 2. A tabletop 206 has receiving areas 207 below

the tabletop **206** that are provided for receiving the curved carrier arms **205**. A stowing area **209** is providing under the tabletop **206**.

[0056] FIG. 4 shows a cross sectional view of the bar arrangement **200**. It denotes that the seating surface **203** may be extended as shown by the shaded seat **203** and folded back against the vertical wall **204** as shown by the unshaded position of the seat **203**. Alternatively, the vertical wall **204** may have a recessed portion shaped such that the wall **204** accommodate the seating surface **203** within the wall, forming a substantially flat surface when the barstool **202** is in the stowed position.

[0057] FIG. 5 shows a partial view of an extension insertion mechanism **208** cut along the line A-A' from FIG. 4, which illustrates a spatial arrangement of components of the extension/insertion mechanism **208**.

[0058] A bar arrangement **600** according to an embodiment of the invention will be described below drawing reference to FIG. 6. The bar arrangement **600** comprises a barstool **610** and a bar counter **620**. A vertical wall **204** of the bar counter **620** has a depression **621**, into which a rectilinear carrier arm **601** of the barstool **610** may be incorporated in a space-saving manner. The barstool **610** is designed in such a way that the seating surface **203** may be folded back by means of a folding element **602** and stowed against the vertical wall **204** of the bar counter **620** via the extension and/or insertion unit arranged inside the bar counter **620**. In addition, the rectilinear carrier arm **601** may be folded back by means of a second folding mechanism **603** and stowed against the vertical wall **204** of the bar counter **620** by moving the extension and/or insertion unit.

[0059] In particular, the extension and/or insertion unit may be used to simultaneously fold back the rectilinear carrier arm **601** along a first folding axis, and fold back the seating surface **203** along a second folding axis, so that the carrier arm **601** and the seating surface **203** may be stowed against the vertical wall **204** of the bar counter **620**. FIG. 6 shows an embodiment with a folding mechanism in which the barstool **610** is folded against the bar wall **204**, and may be locked in place there.

[0060] A bar arrangement **700** according to an embodiment of the invention will be described below drawing reference to FIG. 7. In the bar arrangement **700**, a barstool **710** is pushed against the bar wall **204** of a bar counter **720** and locked thereto. A rectilinear carrier arm **710** and the circular seating surface **203** may be moved by a shifting element **702** toward the bar counter **720** via the extension and/or insertion unit inside the bar counter **720**. The vertical lateral wall **204** of the bar counter **720** has a recess **703** that is matched to the shape of the barstool **710** and adapted to receive and embed the barstool **710**. A foldable seating surface is possible here as well.

[0061] FIG. 8 shows a cross sectional view of the bar arrangement **700** from FIG. 7, wherein a shifting direction **800** is again denoted. In the embodiment shown on FIG. 8, the barstool **710** is pushed to the bar wall **204** and locked in place there.

[0062] A top view of a bar arrangement **900** according to an embodiment of the invention in an aircraft will be described below drawing reference to FIG. 9. In a manner similar to FIG. 1, FIG. 9 also shows an arrangement of a bar

counter **901** and barstools **902** according to one example of the invention, wherein the barstools **902** in the scenario depicted (barstool during takeoff, landing, or taxi operations of the aircraft) is stowed inside the bar counter **901**, and hence not visible on FIG. 9. As a result, the escape route **104** formed between the bar arrangement **900** and a monument **103** may be made sufficiently wide.

[0063] Therefore, the invention allows better utilization of the space in the cabin (cabin length). In addition, potential obstacles in case of evacuation may be eliminated (increasing product safety and permissibility options). The invention also enables quicker boarding, since the stools pose no mechanical obstacle to entering passengers. The bar may also be useful as an information desk (e.g., with stool(s) retracted).

[0064] In addition, it must be pointed out that "comprising" does not preclude any other elements or steps, and "one" or "a" does not exclude a plurality. Let it also be noted that features or steps described with reference to one of the above embodiments may also be used in combination with other features or steps from other Embodiments described above. Reference numbers in the claims are not to be regarded as restrictive.

What is claimed:

1. A barstool for use with a bar counter having a wall portion extending downward from the bar counter, the barstool comprising

an extension or insertion unit or both; and

a seating unit; the seating unit coupled with the extension or insertion unit or both such that the seating unit is stowable and extendable by moving the seating unit relative to the wall portion of the bar counter by inserting or pivoting the extension or insertion unit or both.

2. The barstool according to claim 1, further comprising a carrier arm arranged between the extension or insertion unit or both and the seating unit.

3. The barstool according to claim 2, wherein the carrier arm may be stowed inside the bar counter or the seating unit or both are stowed against the vertical wall of the bar counter by the extension or insertion unit or both.

4. The barstool according to claim 2, wherein the carrier arm is curved.

5. The barstool according to claim 4, wherein the carrier arm is an integral component of the bar counter.

6. The barstool according to claim 2, wherein the carrier arm may be folded over and stowed against the vertical wall of the bar counter by the extension or insertion unit or both.

7. The barstool according to claim 2, wherein the seating unit may be folded over and stowed against the vertical wall of the bar counter by the extension and/or insertion unit.

8. The barstool according to claim 2, wherein the extension or insertion unit or both being adapted to simultaneously fold the carrier arm along a first tilting axis, and fold the seating unit along a second tilting axis, and to stow the carrier arm and the seating unit at the vertical wall of the bar counter.

9. The barstool according to claim 2, wherein the carrier arm and seating unit may be shifted in the direction of the bar counter, by the extension or insertion unit or both.

10. The barstool according to claim 2, wherein the carrier arm and seating unit may be shifted, and at least partially stowed inside the bar counter by the extension or insertion unit or both.

11. The barstool according to claim 6, wherein the carrier arm is rectilinear.

12. The barstool according to claim 1, further comprising a locking mechanism for locking to the bar counter.

13. The barstool according to claim 1, wherein the seating unit has a substantially round or substantially cylindrical seating surface.

14. The barstool according to claim 1, comprising an actuator element, wherein the extension or insertion unit or both may be activated by enabling the actuator.

15. A bar counter, comprising

a receiving unit;

wherein the receiving unit is adapted in such a way that a barstool according to claim 1 may be stowable

therein, or the barstool may be moved out of the receiving unit relative to the bar counter.

16. The bar counter according to claim 15, further comprising a tabletop.

17. The bar counter according to claim 15, wherein the receiving unit is secured to a vertical lateral wall of the bar counter or is provided as a recess in the vertical lateral wall of the bar counter.

18. A bar arrangement, comprising

a barstool according to claim 1; and

a bar counter according to claim 15.

19. An aircraft, comprising a barstool according to claim 1 or comprising a bar counter according to claim 15 or both.

20. A method of stowing a barstool, comprising: using the barstool according to claim 1; or using the bar counter according to claim 15; or using both the bar stool according to claim 1 and the bar counter according to claim 15.

* * * * *