INTEGRATED RUNNER TIP

Field of the Invention

The present invention relates to a galley container or a trolley, in particular a galley cart for use in an airplane, having a support element for supporting a drawer in a drawn position.

Description

During short or long journeys in a vehicle, in particular an aircraft, passengers are usually provided with at least a beverage or a snack. For this purpose, food or drink products or meals are carried on board of the vehicle, for example an airplane, in galley containers that can be stored in the onboard galleys. The galley container can be a galley trolley provided with wheels for transportation.

For the flight attendant, the galley container is one of the main tools when serving the passengers. During serving the contents from the galley container, a drawer stored within an interior of the galley container can be drawn in and out over a runner that guides and supports the drawers, to be able to reach its contents. In order to be able to reach the most behind positioned contents, the drawer is drawn out in a maximum position. The force exerted on the runner and the side walls of the galley container, causes deformation of the runner and/or the side walls. In such a deformed state, the runners cannot provide support to the drawers anymore, such that the drawers will move with respect to the sidewalls. In this state, the runners cannot guide the drawers when drawn in and out of the galley container and they can get stuck.

According to the invention, a galley container for use in an aircraft is provided, the galley container comprising an interior that is enclosed by at least two opposite container side walls, wherein each side wall on a side facing the interior is provided with a guide for guiding a drawer from a retracted position within the interior of the galley to a drawn position wherein the drawer extends partly outside the galley container, wherein the guide extends between end rims of the container side wall, and wherein at an end of the guide a support element is located for supporting the drawer in the drawn position.

By using a support element at an end of the guide, the drawer is supported in the drawn position, i.e. drawn out of the galley container, such that the load on the ends of

the guides, i.e. runners, in the drawn position is reduced and deformation of the ends of the runners is prevented. Additionally, the support element forms a continuation or an extension of the runner or guide, i.e. a runner tip, such that the drawer can be drawn out further with reduced risk of the drawer falling out of the galley container.

The support element at the end of the guide may be an extension of the guide or guide rail, i.e. the guide rail goes over into the support element, wherein the end of the guide rail and the support element are adjacent to each other. Alternatively, the support element may be a separate element provided at a distance from the guide rail end, preferably between and end edge of the container side wall and the guide rail end, and extending in a similar direction as the guide. It is preferred that the support element and the guide are aligned with respect to each other.

The galley container may comprise a rim element provided at the end rims of the side wall, wherein the support element is provided on a rim element. Preferably, the support element and the rim element form an integral part. Alternatively, the support element can be connected to the rim element of the container side walls, for instance by means of welding. The support element may have any shape, but is preferably U-shaped wherein legs of the U-shape are directed towards the container side walls.

The end edge of the container may be provided with a rim element or a rim profile extending along at least part of the peripheral end edge of the container.

It is preferred that the support element extends in a similar direction as the runner of which it is an extension, i.e. when the runner extends into the interior of the galley container, the support element may extend in that same direction. The support element may extend into the interior of the galley container in a direction perpendicular to the container side walls.

The galley container may further comprise at least two container sidewalls, a container floor element and a container ceiling element, forming a hollow shell casing with a circumferential rim at each end of the hollow inner shell casing, wherein the support element is provided at at least the circumferential rim adjacent the side wall.

The support element may be provided at a rim element provided at the end rim of the side wall forming part of the circumferential rim of the hollow shell. The circumferential rim of the hollow shell may form an access opening to the interior of the galley container. This access opening may be provided with a door for opening and

closing the galley container. It is preferred that the support element is provided at at least the end of the guide facing the access opening.

The support element or runner tip forming an integral unit with the rim element may be formed by means of machining or milling of a base part. The base part may have a basic shape having similarities with the final shape of the support element. The base part may comprise a profiled surface, i.e. may be a basic shaped profiled rim element. After machining or milling the profiled surface, i.e. removing part of the profiled surface, the support element is formed at the location of the runner in the galley container. As the support element is machined from a single piece of material, the connection between the support element and the rim element is relatively strong and rigid. The base part may be an extruded profile. The extrusion process may require even distribution of material, resulting in even wall thickness along the extruded profile. The U-shaped support element may be a result of using such an extruded profile. However, any other method of manufacturing the support element may result in other suitable shapes.

The advantages of the support element or runner tip at the end of the guide or runner are:

- The runner tip is made out of solid material and is therefore stronger than folded or pressed runners or runner tips.
- Due to the strength of the runner tip, the downward force is absorbed by the integrated tip, and not by the runner, decreasing the risk of deformation of the runner and/or side wall.
- Since the runner tip is integrated in the vertically oriented extrusion profile forming the rim element, it has a very good structural connection with the rim element.
- The integrated runner tip extends the runner, allowing to pull out the drawer further.
- The extension of the runner by the runner tip makes the use of the trolley safer since the drawer will not drop out of the trolley or galley container when trying to reach the back of the drawer.
- Due to the straight and solid shape, the force exerted on the drawer prevents the tips of the runner from bending. Therefore the trolley side walls will less likely bow out, i.e. deform.

- The integrated runner does not add extra parts to be assembled during the manufacturing process of the galley container, as it is integrated into the rim element already provided.

DRAWINGS

An example of a galley container known from the prior art and an embodiment of the galley container according to the invention is shown in the drawings.

Figures 1a and b show a trolley with a drawer according to the prior art.

Figures 2a and b show an embodiment of a trolley with a drawer according to the invention.

Figure 3 shows a cross-section of a rim element having a support element according to the invention.

Figure 4 shows a perspective view of a rim element as a base part before processing.

Figure 5 shows a perspective view of a rim element with a support element after processing.

Figures 1a and b show a trolley 100 with a drawer 102 according to the prior art. The trolley comprises two container sidewalls 104, a container floor element 108 and a container ceiling element 106, forming a hollow shell casing 120. The trolley 100 is furthermore provided with wheels 114 for moving the trolley within an airplane or for transport. A galley container similar to the trolley 100 but without the wheels can be used as a stationary container in a galley of an airplane. The hollow shell casing 120 as an end edge 124 on which a rim element 110 is provided. The circumferential rim 110 of the hollow shell casing 120 forms an access opening 122 to an interior of the galley container 100. This access opening 122 is provided with a door 116 for opening and closing the galley container 100. The container side walls 104 are each provided with multiple guide rails 112 at an inner side of the hollow shell casing 120. The guide rails 112 extend between front and rear end edges 124. The drawer 102 is provided with grooves 126 in which the guide rails can be accommodated such that the drawer is guided by the grooves 126 over the guide rails 112 from a retracted position (not shown) to an drawn position in the direction of arrows A, as shown in fig. 1a. When a

downwards directed force in the direction of arrow B is exerted on the drawer in the drawn position, the guide rails 112 or runners and/or the container side walls will deform. In some events, the grooves 126 of the drawer 102 will deform as well. When deformed, the grooves 126 of the drawers and the guide rails 112 cannot cooperate in a smooth way, such that upon moving along arrow A, i.e. from the extended to the retracted position and vice versa, the drawer will get stuck on the guide rails 112. In addition, the runners 112 cannot provided sufficient support to the drawer 102, such that deformation of the runners 112 and/or side walls 104 will increase even further. As shown in fig. 1b, which is a detailed drawing of the guide rail end or runner tip 128 and the neighboring rim element 110, the rim element 110 has a smooth surface and the runner tip 128 is located at a distance different from zero before the rim element 110.

Figures 2a and b show an embodiment of a trolley 200 with a drawer 202 according to the invention. The trolley 200 comprises two container sidewalls 204, a container floor element 208 and a container ceiling element 206, forming a hollow shell casing 220. The trolley 200 is furthermore provided with wheels 214 for moving the trolley within an airplane or for transport. A galley container similar to the trolley 200 but without the wheels can be used as a stationary container in a galley of an airplane. The hollow shell casing 220 as an end edge 224 on both a rear and a front side, on which end edge a rim element 210 is provided. The circumferential rim 210 of the hollow shell casing 220 forms an access opening 222 to an interior of the galley container 200. This access opening 222 is provided with a door 216 for opening and closing the galley container 200. The container side walls 204 are each provided with multiple guide rails 212 at an inner side of the hollow shell casing 220. The guide rails 212 extend between the front and rear end edges 224. The drawer 202 is provided with grooves 226 in which the guide rails 212 can be accommodated such that the drawer 202 is guided by the grooves 226 over the guide rails 212 from a retracted position (not shown) to an drawn position in the direction of arrows A, as shown in fig. 2a. In order to prevent that a downwards directed force in the direction of arrow B exerted on the drawer 202 will result in deformation of the guide rails 212 and/or the side walls 204, the rim element 210 is provided with an additional support element 218 that is aligned with respect to the guide rail 212 and forms a continuation of the guide rail 212. The support element 218 supports the drawer 202 in the drawn position, such that the drawer 202 is more stable in this position and can undergo downward exerted forces

without severe deformation of the guide rails 212 or grooves 226. Because the support element 218 is provided at the runner tip or guide end 228, the support element 218 provides an extra support surface, such that the drawer 202 will have a higher resistance against tilting under the influence of force B. As shown in fig. 2b, which is a detailed drawing of the guide rail end or runner tip 228 and the neighboring rim element 110, the support element 218 is provided on the rim element 210 and is located at a distance different from zero from the runner tip 228.

Figure 3 shows a cross-section of a rim element 210 having a support element 218. The rim element 210 is formed as an elongated profiled element having a closed end 230 and an opposite open end 232 in which an end edge 224 of the hollow shell casing 220 can be received. The closed end 230 is used as either an abutment for the door 216 or as part of the hinge construction between the door 216 and the hollow shell casing. The support element 218 is formed as a U-shape of which the legs 218' and 218" are connected or extend from the rim element 210.

Figure 4 shows a perspective view of a rim element 210 as a base part 240 before processing. The base part 240 is comprised of the elongated profiled element 210 and a hollow extending part 242 that extends from the profiled element. The base part 240 is manufactured as an extruded profile. The material used for the base part 240 and thereby for the rim element 210 and the runner tip 218 may be aluminum or any other material having a similar strength to weight ratio, and preferably can be extruded into elongated profiles. The hollow extending part 242 already has similarities with the U-shape of the support element 218 shown in figure 5. The base part 240 is processed by means of milling, cutting or other mechanical processes, wherein parts of the extending part 242 are removed, leaving only the support elements 218 at intermittent locations on the rim element 210, as shown in fig. 5.

Claims

1. Galley container for use in an aircraft, comprising an interior that is enclosed by at least two opposite container side walls, wherein each side wall on a side facing the interior is provided with a guide for guiding a drawer from a retracted position within the interior of the galley to a drawn position wherein the drawer extends partly outside the galley container, wherein the guide extends between end edges of the container side wall, and wherein at a guide end a support element is located for supporting the drawer in the drawn position.

2. Galley container according to claim 1, comprising a rim element provided at the end edges of the side wall, wherein the support element is provided on the rim element.

3. Galley container according to claim 2, wherein the support element and the rim element form an integral part.

4. Galley container according to any of the preceding claims, wherein the support element extends in a similar direction with respect to the container side wall as the guide of which it is an extension.

5. Galley container according to any of the preceding claims, wherein the support element extends from the rim element into the interior of the galley container in a direction perpendicular to the container side walls.

6. Galley container according to any of the preceding claims, comprising at least two container sidewalls, a container floor element and a container ceiling element, forming a hollow inner shell casing with a circumferential rim at each end of the hollow inner shell casing, wherein the support element is provided at at least the circumferential rim adjacent the side wall.

7. Galley container according to any of the preceding claims, wherein the support element is U-shaped and wherein legs of the U-shape are directed towards the container side walls.