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SANT JOAN LES FONTS (ES)(57) **ABSTRACT**(21) Appl. No.: **17/771,485**(22) PCT Filed: **Oct. 24, 2019**(86) PCT No.: **PCT/ES2019/070722**

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A container-carrying device includes a body that has on the surface at least one opening that is sized for a container to be passed and tightly inserted therethrough. The opening has a contour that has at least one tab extended towards the inside of the same opening, which defines a transition region between the tab and the body. The tab has folding or bending capability in relation to the body. The contour has a rounded chamfer geometry on at least one section adjacent to the transition region between at least one tab and the body.

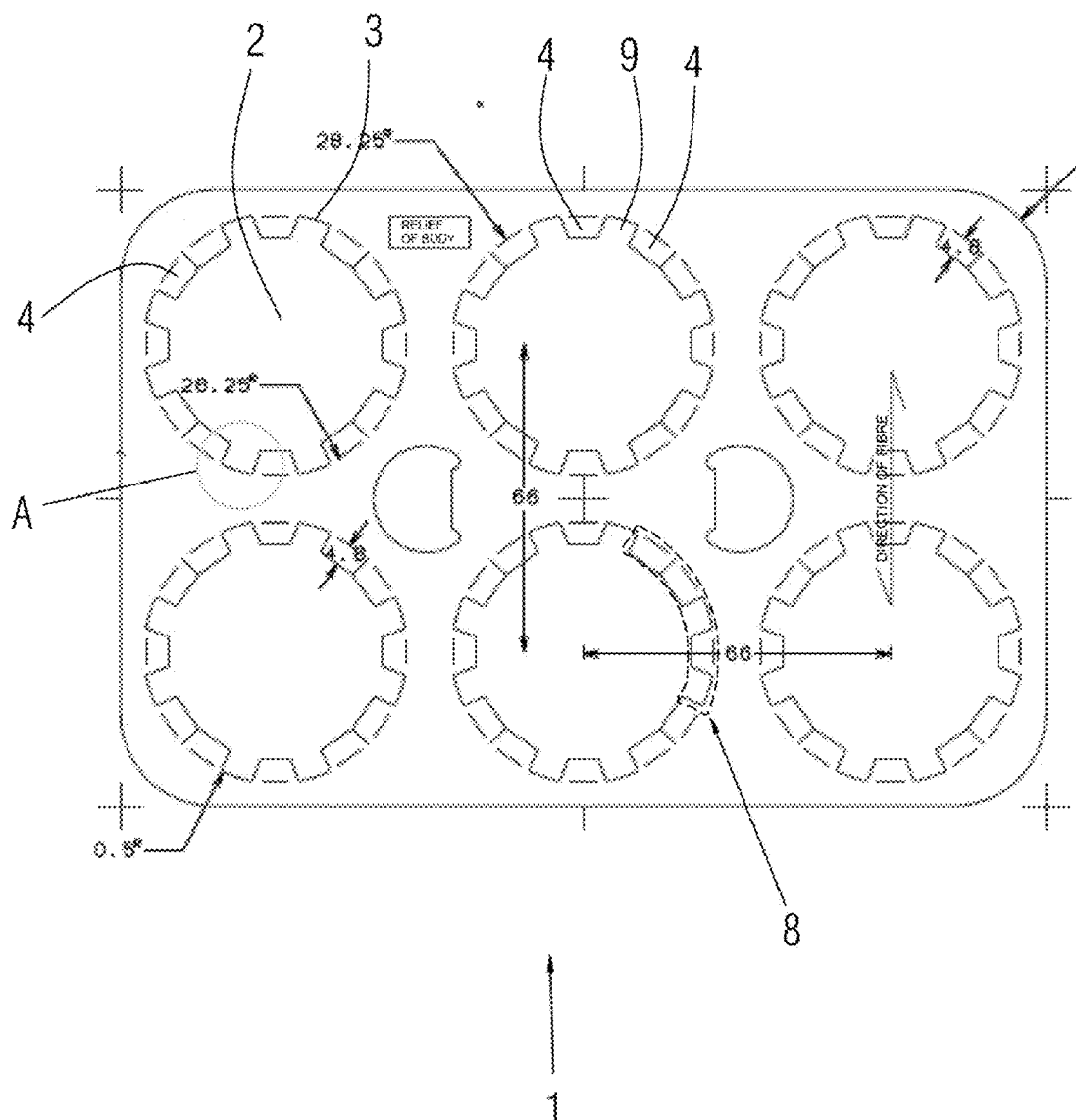


FIG. 1

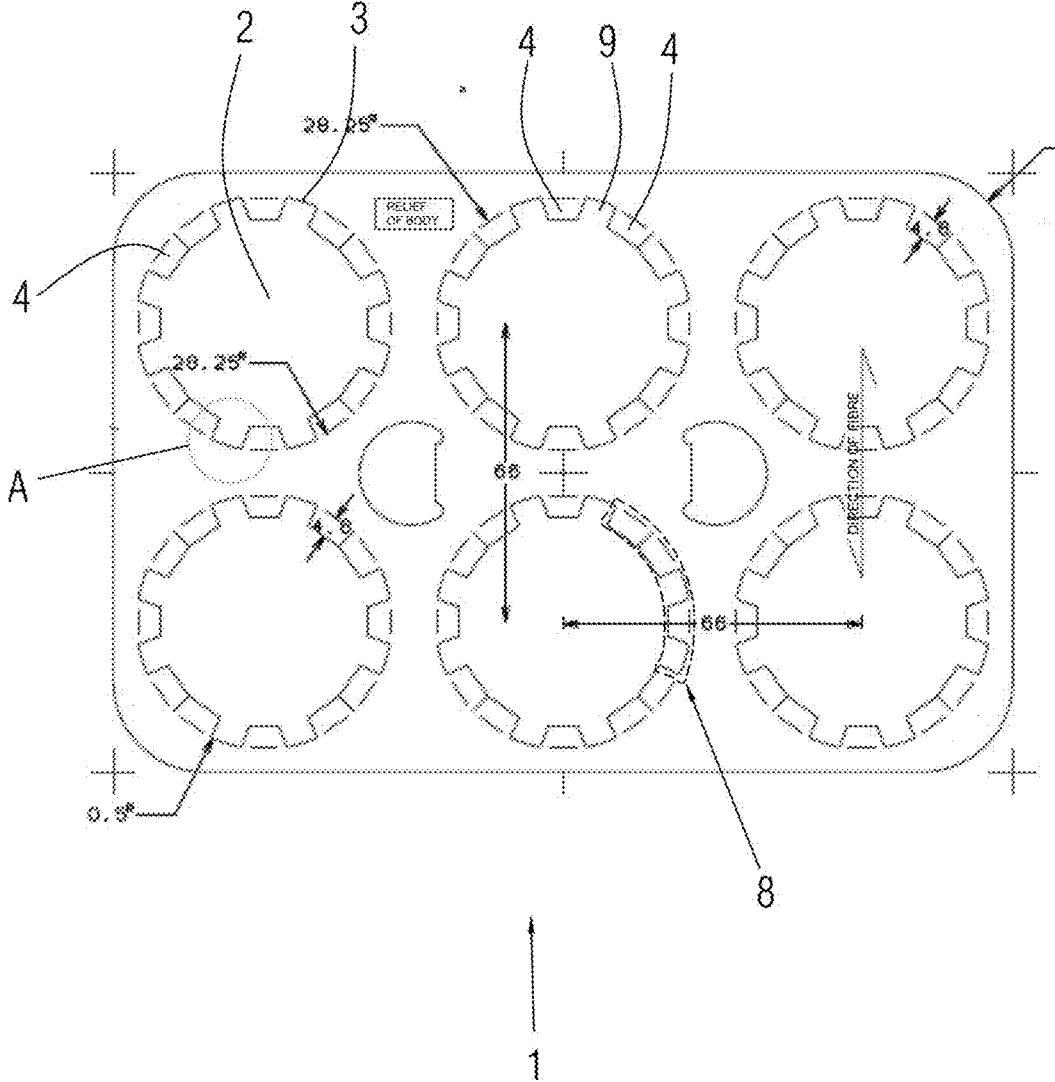


FIG. 2

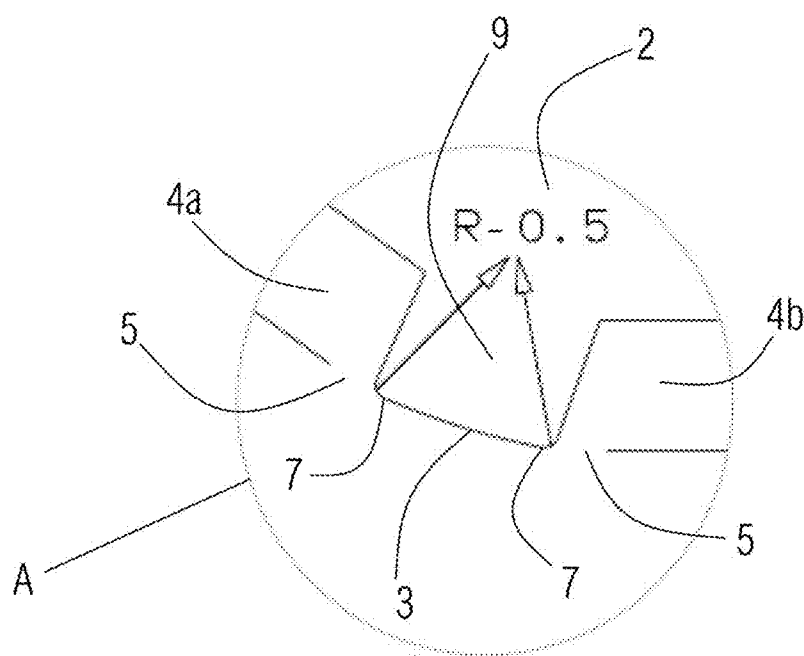
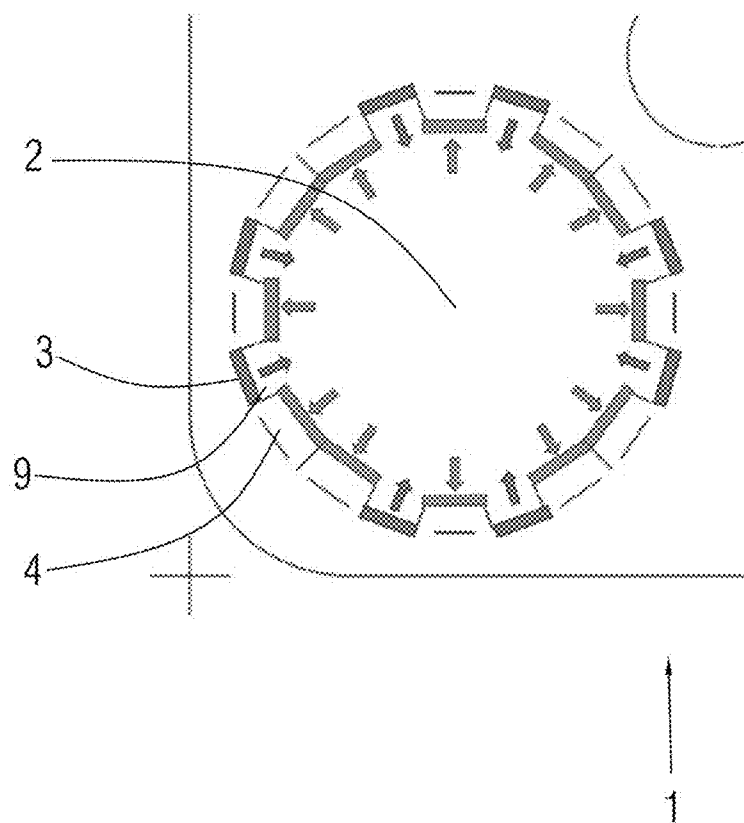


FIG. 3



CONTAINER-CARRYING DEVICE

OBJECT OF THE INVENTION

[0001] The present invention is directed to a container-carrying device which incorporates significant innovations and advantages over the techniques used up until now.

[0002] More specifically, the invention is directed to a container-carrying device which, because of its particular arrangement, preferably allows the manual carrying of beverage cans or bottles grouped in the form of a “pack” in a manner that is more effective, more resistant, safer and simpler for the user.

BACKGROUND OF THE INVENTION

[0003] Different means for grouping beverage cans or containers in the form of a “pack” for manual carrying thereof by the user are known in the current state of the art.

[0004] Nevertheless, said grouping means for beverage cans or containers have certain drawbacks, such as discomfort and difficulty in the manual carrying thereof, and it is particularly easy for the cans or containers being carried to accidentally or unintentionally slip or fall out.

[0005] In this sense, the interaction of the cans or containers with the grouping means can cause the material thereof to tear and, therefore, it is necessary to improve the resistance of the weakest parts thereof that are most likely to tear.

[0006] The mutual contact between the different grouping means can also lead to wear and deterioration.

[0007] The present invention helps to solve and overcome the present problems as it allows the manual carrying of beverage cans or containers grouped together in the form of a “pack” in a manner that is more effective, more resistant, safer and simpler for the user.

SUMMARY OF THE INVENTION

[0008] The present invention has been developed with the aim of providing a container-carrying device that comprises a body which has on the surface thereof at least one opening that is sized for a container to be passed and tightly inserted therethrough, said opening having a contour that has at least one tab extended towards the inside of the same opening, thereby defining a transition region between the tab and the body.

[0009] Said tab has folding and bending capability in relation to the body and said contour has, on at least one section adjacent to the transition region of a tab, a rounded chamfer geometry.

[0010] First, it must be emphasised that the containers may be any type of vessel configured to store a liquid or solid. As such, the geometry of the opening shall preferably be in accordance with the geometry of the container to be carried by means of the carrying device according to the invention, so that in a condition of use of said carrying device, in which a container has been inserted through the opening, said container shall be fitted to said opening.

[0011] Said containers are preferably cans or bottles, and more preferably have a neck area. Thus, the opening will preferably have a geometry of a circumference and in a condition of use of the carrying device in which a container has been inserted through the opening, tabs are arranged on this neck area.

[0012] The body can have a polygonal geometry and, more specifically, a rectangular one. The body preferably has a laminar-type design and can be made of solid fibreboard, more specifically of the Kraft type (classified by the following grades: SUS, GN4, CNK and UUK).

[0013] The contour of the opening can be defined or interpreted as the linear perimeter of said opening.

[0014] The tabs can have a symmetrical geometry, specifically, a circular, elliptical, polygonal, rectangular or trapezoidal geometry.

[0015] Furthermore, the transition region can also be understood as the intermediate region between the tab and the body of the carrying device. In other words, the use of this expression (transition region) refers to the fact that it may be difficult to determine whether said region belongs to the tab or to the body.

[0016] The section adjacent to the transition region is a section that is characterised in that it is in contact with the transition region, delimiting it.

[0017] As was previously mentioned, in the carrying device according to the invention, the contour has on at least one section adjacent to the transition region of at least one tab, a rounded chamfer geometry. A rounded chamfer geometry can also be interpreted as a rounded corner geometry, such that a vertex is not defined. The rounded chamfer geometry is preferably a circular arc.

[0018] It must be emphasised that a rounded chamfer geometry corresponds to a graphic representation of a mathematical function, of the type that in infinitesimal and vector calculus is continuous and able to be derived in real numbers.

[0019] In other words, the aim of this adjacent section with a chamfer geometry is to join the tab to the contour without interruption, thereby preventing said joint from being made through vertices, given that vertices have less resistance and easily lead to the tearing of the tabs.

[0020] As a result, the aforementioned rounded chamfer geometry improves the resistance to tearing of the previously mentioned tabs when they interact with the container when inserted through the opening.

[0021] This improvement is especially remarkable with regard to laminar-type bodies made of Kraft-type solid fibreboard.

[0022] In this sense, it is worth mentioning that the improvement is even more noteworthy given that on laminar-type bodies made of Kraft-type solid fibreboard, the geometry of the rounded chamfer corresponds to an arc radius between 0.45 mm and 1.5 mm.

[0023] Likewise, it is noteworthy that not all of the sections adjacent to the transition regions of the tabs of the contour must have a rounded chamfer geometry, given that some may also be in the form of vertices. This is because it has been demonstrated that if at least one section adjacent to the transition region between at least one tab and the body has a rounded chamfer geometry, the degree of resistance is already improved.

[0024] It must also be mentioned that if the tab has a rectangular or trapezoidal geometry, the adjacent sections will be situated on the lower part of the sides that join the tab to the contour.

[0025] In a preferred embodiment of the container-carrying device according to the invention, when said container-carrying device is in a condition of use, one region of at least

one tab, such that said region is adjacent to the upper free edge of the same tab, it is configured to withstand compressive load and force.

[0026] Thus, for example, when a container is inserted through the corresponding opening of the carrying device according to the invention, at least one region of a tab that is adjacent to the upper free edge of the same tab is compressed.

[0027] This ensures a better fastening of the container to the carrying device.

[0028] It is noteworthy that the carrying device of the invention according to this preferred embodiment does not require the tab of the contour on which a section adjacent to the transition region thereof has a rounded chamfer geometry to be configured so that, in a condition of use of the carrying device, it withstands compressive load and force.

[0029] In other words, the carrying device of the invention can have at least one tab of the contour in which a section adjacent to the transition region thereof has a rounded chamfer geometry and another tab can be configured so that, in a condition of use, of the carrying device it withstands compressive load and force.

[0030] Likewise, the carrying device of the invention can have at least one tab of the contour in which a section adjacent to the transition region thereof has a rounded chamfer geometry, and at the same time this tab can be configured so that, in a condition of use of the carrying device, it withstands compressive load and force.

[0031] In another preferred embodiment of the container-carrying device according to the invention, in the case that said container-carrying device has at least one tab in which a region of said tab adjacent to the upper free edge of the same is enabled so that, in a condition of use of the carrying device, it withstands compressive load and force, at least one section of the contour from which a tab does not extend will be configured so that, in a condition of use of the carrying device, it withstands tractive load and force.

[0032] It must be noted that in the case that a container is introduced in said opening, this section of the contour, from which a tab does not extend, is narrowed.

[0033] This narrowing allows the stresses resulting from the compression of the tab to be released and/or compensated for, thereby preventing tearing of the tabs or of the carrying device.

[0034] As mentioned above, the carrying device according to the invention can comprise a plurality of tabs in which one region of the tab that is adjacent to the upper free edge of the same tab is able withstand compressive load and force in a condition of use of the carrying device. Likewise, at least one section of the contour of said carrying device from which no tab extends can be configured so that, in a condition of use of the same carrying device, it withstands tractive load and force sufficient to compensate for the compressive load and force of the tabs.

[0035] In another preferred embodiment of the container-carrying device according to the invention, the contour has two sections adjacent to the transition region between one same tab and the body with a chamfer geometry and arranged in opposite positions with respect to the transition region.

[0036] In other words, one same tab would be joined to the body by each side thereof through an adjacent section with a chamfer geometry.

[0037] In the case that the tab is symmetrical, the sections arranged in opposite positions with respect to the transition region are preferably symmetrical with respect to the axis of symmetry of the tab.

[0038] In another preferred embodiment of the container-carrying device according to the invention, said container-carrying device comprises at least two tabs and the contour has on at least one section adjacent to the transition region between at least one of those tabs and the body, a rounded chamfer geometry.

[0039] It must be emphasised that in the case of a plurality of tabs there are multiple possible configurations, some of which are included below:

[0040] Each one of the sections of the contour with a rounded chamfer geometry adjacent to the transition region can be arranged between a different tab and the body; or,

[0041] Pairs of sections of the contour with a rounded chamfer geometry adjacent to the transition region can be arranged between one same tab and the body in opposite positions with respect to said transition region and each one of the rest of the sections with a rounded chamfer geometry adjacent to the transition region between another tab and the body.

[0042] In another preferred embodiment of the container-carrying device, said container-carrying device comprises two contiguous tabs. In this case, preferably, at least one section of the contour with a rounded chamfer geometry is arranged adjacent to the transition region between one of the contiguous tabs and the body and is free from contact with the other contiguous tab (meaning, with the transition region between the other contiguous tab and the body).

[0043] The container-carrying device can comprise a spacing between at least two tabs. In this case, the contour preferably has two sections adjacent to each transition region between a tab and the body with a chamfer geometry arranged in opposite positions with respect to the spacing. This means that the joining area of one tab to the contour and the joining area of the other tab (separated from the first by the spacing) to the contour closest to the aforementioned first joining area have a chamfer geometry.

[0044] In a preferred embodiment, at least one region of at least one of these tabs, such that the region is adjacent to the upper free edge of the same tab, is enabled so that in a condition of use of the container device, it withstands compressive load and force.

[0045] Preferably, the spacing (and more specifically the region of the contour that is adjacent to the spacing) existing between these two tabs is enabled so that it withstands tractive load and force in a condition of use of the carrying device and, even more preferably, to such a degree that it is able to essentially compensate the load and force of compression withstood by the aforementioned tabs.

[0046] As was mentioned above, the balance obtained between the stress of compression and traction ensures an improved fastening of the container to the carrying device.

[0047] In this sense, in one of these preferred embodiments of the container-carrying device of the proposed invention, the fastening of the container based on the weight exerted by the same results in 60% compressive load and force withstood by the tabs, and in 40% tractive load and force withstood by the spacings.

[0048] It must be mentioned that the position of the tabs in a condition of use of these preferred embodiments of the

carrying device can surpass 90° with respect to the horizontal plane formed by the container lid.

[0049] In another preferred embodiment, the spacing has a symmetrical geometry which preferably allows the sections mentioned in the previous paragraph to be symmetrical with respect to the axis of symmetry of the spacing.

[0050] Preferably, the region of the contour of the opening that corresponds to the spacing has a rectilinear geometric path and, more specifically, a straight path.

[0051] Likewise, the container-carrying device according to the invention can comprise a contour with at least three tabs, at least two tabs being contiguous and at least one spacing existing between two tabs. Preferably, the contour has at least one section with a rounded chamfer geometry adjacent to the transition region between one of the tabs which is contiguous and the body and/or a section with a rounded chamfer geometry adjacent to the transition region of one of the tabs separated by the spacing.

[0052] In a preferred embodiment of the carrying device according to the invention, the contour of said carrying device has at least one distribution of tabs according to a sequence that repeats at least once throughout the contour.

[0053] It must be noted that this allows there to be both a distribution of tabs along the contour according to a sequence that repeats at least once, as well as a distribution with another tab or other tabs that do not follow the same sequence.

[0054] This sequence can comprise at least two contiguous tabs and/or a space. Specifically, this space can be between two tabs and/or can be situated at the beginning of the sequence and/or at the end of the sequence.

[0055] In a preferred embodiment, at least one tab of the sequence comprises a region which is adjacent to the upper edge of said tab in which the aforementioned region is configured so that, in a condition of use of the carrying device, it withstands compressive load and force.

[0056] Preferably, at least one region of the contour that is adjacent to at least one space of the sequence is configured so that, in a condition of use of the carrying device, it withstands tractive load and force and, even more preferably, to such a degree that it is able to compensate for at least the compressive load and force withstood by a tab.

[0057] This means that in a sequence in which the tabs and spaces alternate, the regions of the contour that are adjacent to at least one space of the sequence are configured so that, in a condition of use of the carrying device, they withstand tractive load and force to such a degree that they are able to compensate for the compressive load and force withstood by the tabs.

[0058] Thus, the spaces are configured to release the stresses created by the compression of the tabs, thereby preventing possible tearing.

[0059] In this sense, in one of these preferred embodiments of the container-carrying device of the proposed invention, the fastening of the container based on the weight exerted by the same results in 60% compressive load and force withstood by the tabs, and in 40% tractive load and force withstood by the region of the contour of the opening of the body that corresponds to the spaces.

[0060] It must be mentioned that the position of the tabs in a condition of use of these preferred embodiments of the carrying device can surpass 90° with respect to the horizontal plane formed by the container lid.

[0061] Preferably, the region of the contour of the opening that corresponds to the space has a straight geometric path and, more specifically, a straight path.

[0062] In this sense, examples of possible tab sequences could either be: tab-space; tab-tab-space; tab-tab-tab-space; tab-space-tab; tab-space-tab-tab; tab-tab-space-tab; tab-tab-space-tab-space; etc.

[0063] In these cases, the section of the contour adjacent to the transition region between a tab and the body that has a rounded chamfer geometry can be in the transition region between a tab of the sequence and the body, or in the transition region between another tab of the body that does not follow any type of sequence.

[0064] Preferably, the section adjacent to the transition region between a tab and the body that has a rounded chamfer geometry is in the transition region between a tab of the sequence and the body.

[0065] In another preferred embodiment, the contour has, on two sections adjacent to the transition region between a tab according to the sequence and the body in opposite positions with respect to the transition region, a rounded chamfer geometry.

[0066] In the case that in the sequence there is a space between a first tab and a second tab, the contour preferably has at least on one section adjacent to the transition region between the first tab according to the sequence and the body closest to the space, a rounded chamfer geometry and in another section adjacent to the transition region between the second tab according to the sequence and the body closest to the space, a rounded chamfer geometry.

[0067] It must be emphasised that the advantages of resistance offered by the sections of the contour with a rounded chamfer geometry are especially optimal in the case of tab sequences and, even more optimal in tabs of the sequence separated by a space.

[0068] Thanks to the present invention, the manual carrying of containers grouped together in the form of a “pack” is achieved in a manner that is more effective, more resistant, safer and simpler for the user.

[0069] Other features and advantages of the container-carrying device will become apparent from the description of a preferred but not exclusive embodiment illustrated by way of non-limiting example in the attached drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0070] FIG. 1 is a schematic plan view of a preferred embodiment of the container-carrying device of the present invention.

[0071] FIG. 2 is a schematic view of an enlarged detail of FIG. 1.

[0072] FIG. 3 is a schematic view of the way in which the compressive and tractive load and force act in an embodiment of the carrying device according to the present invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0073] As schematically shown in the plan view of FIG. 1, the container-carrying device of the invention proposed comprises a laminar-type body 1 with a rectangular geometry, which has on the surface thereof at least one opening 2.

[0074] Said openings 2 are sized for a beverage can or container to be tightly pass therethrough and have a contour 3, understood as the linear perimeter thereof, which has at least one tab 4 extended toward the inside of the same opening 2.

[0075] As was previously explained, defined between the tab 4 and the body 1 is a transition region 5, which may also be called intermediate region, as seen more clearly in enlarged detail A of FIG. 2. Likewise, said tab 4 has folding or bending capability in relation to the body 1.

[0076] The distribution of tabs 4 on the contour 3 follows a specific sequence 8 that is repeated at least once throughout the same contour 3, as seen in FIG. 1. Said sequence 8 comprises at least one space 9 that is between two tabs 4 and also two contiguous tabs 4. In FIG. 1, the sequence 8 is shown inside a dashed line, and it is repeated four times, occupying the entire contour 3 of the opening 2.

[0077] The contour 3 of the opening 2 has at least one section 7 with a rounded chamfer geometry, as can be seen in enlarged detail A of FIG. 2. Said section 7 is adjacent to or in contact with the transition region 5.

[0078] As can be seen in enlarged detail A of FIG. 2, the rounded chamfer has rounded corners with no vertices and corresponds to an arc. The radius of this arc is preferably between 0.45 mm and 1.5 mm.

[0079] The enlarged detail A of FIG. 2 shows how the contour 3 has two sections 7 with a rounded chamfer geometry arranged in opposite positions with respect to the space 9.

[0080] Enlarged detail A of FIG. 2 also shows how the space 9 is between a first tab 4a and a second tab 4b. The section 7 with a rounded chamfer geometry is adjacent to the transition region 5 between the first tab 4a and the body 1 closest to the space 9. Another section 7 with a rounded chamfer geometry is adjacent to the transition region 5 between the second tab 4b and the body 1 closest to the space 9.

[0081] As can be seen in FIGS. 1 and 2, the tabs 4 have a symmetrical polygonal, rectangular or trapezoidal geometry.

[0082] Likewise, the space 9 also has a symmetrical geometry, the two sections 7 of the contour 3 having symmetrical rounded chamfer geometries with respect to the axis of symmetry of the same space 9.

[0083] As can be seen particularly in enlarged detail A of FIG. 2, each one of the two sections 7 of the contour 3 connects by means of the rounded chamfer to the sides of the tabs 4a and 4b arranged on either side of the axis of symmetry of the space 9.

[0084] As can be seen in FIGS. 1 and 2, the region of the contour 3 of the opening 2 that corresponds to the space 9 has a straight path.

[0085] In the use of the container-carrying device of the invention, the sections 7 with the rounded chamfer adjacent to or in contact with the transition region 5 of the tabs 4 prevent the tearing of the material of the body 1 when tightly passing the beverage can or container through the openings 2 of the same body 1.

[0086] As can be seen in FIG. 3, another highly advantageous aspect of the arrangement of the container-carrying device of the proposed invention is that in the use thereof, by tightly inserting and arranging a container through the opening 2, the action of the weight of the container itself

causes the region of the tabs 4 that corresponds to the upper free edge of the same tabs 4 to withstand compressive load and force.

[0087] At the same time, and due to the same action of the weight of the same container, in the same condition of use with the container tightly inserted and arranged through the same opening 2, the region of the same contour 3 of the opening 2 that corresponds to the spaces 9 withstands tractive load and force.

[0088] In a highly advantageous way and as a result of the foregoing, in the container-carrying device of the proposed invention, the fastening of the container based on the weight exerted by the same results in around 60% compressive load and force withstood by the tabs 4 and around 40% tractive load and force withstood by the region of the contour 3 of the opening 2 of the body 1 that corresponds to the spaces 9 or spacings.

[0089] This results in a much more effective fastening of the container in the use of the container-carrying device of the invention by allowing for a more advantageous distribution of the loads and forces to which the contour 3 of the opening 2 of the body 1 is subjected as a result of the weight of the container itself.

[0090] The details, shapes, dimensions and other secondary elements, as well as the materials used in manufacturing the container-carrying device of the invention, may be suitably replaced with others that are technically equivalent and do not depart from the essential nature of the invention or from the scope defined by the claims included below.

1.-31. (canceled)

32. A container-carrying device comprising:

a body that has on the surface thereof at least one opening that is sized for a container to be passed and tightly inserted therethrough,

wherein the opening has a contour that has at least one tab extended towards the inside of the same opening thereby defining a transition region between the tab and the body,

wherein the tab has folding or bending capability in relation to the body, and

wherein the contour has a rounded chamfer geometry on at least one section adjacent to the transition region between at least one tab and the body.

33. The container-carrying device of claim 32, wherein the contour has two sections with a rounded chamfer geometry adjacent to one same transition region, the sections arranged in opposite positions with respect to the transition region.

34. The container-carrying device of claim 32, wherein the contour has at least two contiguous tabs.

35. The container-carrying device of claim 34, wherein at least one section with a rounded chamfer geometry of the contour is arranged adjacent to the transition region between a tab of the two contiguous tabs and the body which is free from contact with the other contiguous tab.

36. The container-carrying device of claim 32, wherein the contour has at least two tabs and at least one spacing between the two tabs.

37. The container-carrying device of claim 36, wherein the contour has at least two sections with a rounded chamfer geometry arranged in opposite positions with respect to the spacing.

38. The container-carrying device of claim 36, wherein the spacing has a symmetrical geometry.

39. The container-carrying device of claim **32**, wherein the contour has at least three tabs,

wherein at least two tabs of the three tabs are contiguous and at least one spacing is between the at least two tabs.

40. The container-carrying device of claim **32**, wherein the contour has a plurality of tabs distributed according to a sequence that repeats at least once throughout the contour.

41. The container-carrying device of claim **40**, wherein the sequence comprises at least two mutually contiguous tabs.

42. The container-carrying device of claim **40**, wherein the sequence comprises at least one space.

43. The container-carrying device of claim **42**, wherein there is at least one space between a first tab and a second tab.

44. The container-carrying device of claim **42**, wherein there is at least one space at the beginning of the sequence and/or at the end of the sequence.

45. The container-carrying device of claim **40**, wherein at least one section with a rounded chamfer geometry is adjacent to the transition region between at least one tab, which is included in the sequence, and the body.

46. The container-carrying device of claim **42**, wherein at least one section with a rounded chamfer geometry is adjacent to the transition region between at least one tab,

which is included in the sequence, and the body; and the contour has at least one section with a rounded chamfer geometry that is adjacent to the transition region between the first tab and the body closest to the space, and another section with a rounded chamfer geometry that is adjacent to the transition region between the second tab and the body closest to the space.

47. The container-carrying device of claim **32**, wherein the body is a laminar-type body.

48. The container-carrying device of claim **32**, wherein the rounded chamfer geometry of the section corresponds to an arc.

49. The container-carrying device of claim **32**, wherein a region of the tab that is adjacent to the upper free edge of the same tab is enabled so that in a condition of use of the carrying device, it withstands a compressive load and force.

50. The container-carrying device of claim **36**, wherein the spacing is enabled so that in a condition of use of the carrying device, it withstands a tractive load and force.

51. The container-carrying device of claim **42**, wherein the region of the contour of the opening that is adjacent to the space is enabled so that, in a condition of use of the carrying device, it withstands a tractive load and force.

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