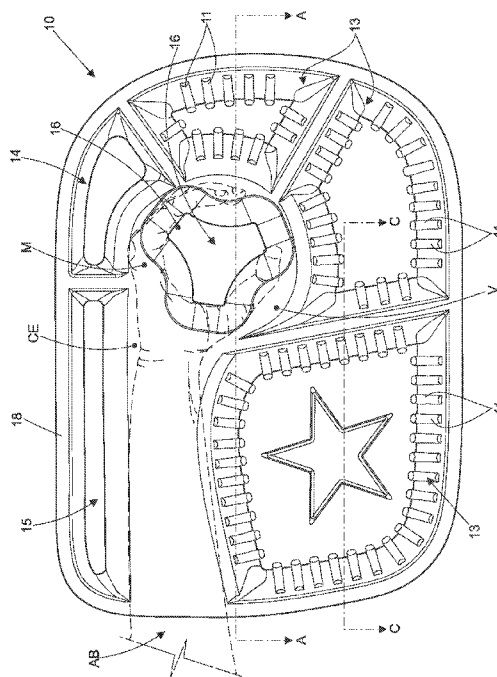




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(54) Title: IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER

FIG.2



(57) Abstract: The present invention relates to a tray (10) with dividing walls (P) forming multiple individual compartments (13), (14) and (15) for accommodation of various foods, such as small meals, snacks, side dishes, among others, and a cup (CP), can or bottle type beverage holder (16); said tray's (10) type includes a longitudinal ergonomic channel (CE) associated with a gap (V) arranged between the inner walls of said compartments (13), (14) and (15) and the beverage holder (16) comprising a central cavity in the gap (V), which is formed by base (16a) and side wall that has at least three equidistant waved sectors (16'), (16'') and (16''') facing the center of said cavity; each waved sector (16'), (16'') and (16''') sets up a wall that is tangent relative to the beverage's surface (L) acting as the beverage's soft hold during the handling of the tray; the spacing regions (R1) among the waved sectors (16'), (16'') and (16''') are formed by recessed arcs relative to the beverage's surface (L); said watertight compartments (13) have the internal surfaces (19) of the walls (20) with



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bumps of semicircular section (11), sequentially distributed in an equidistant and parallel way along all the referred walls (20), forming multiple indentations (21); said bumps (11) slightly advance (11a) on the bases (12) of each mentioned wider dimension compartment.

IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER

TECHNICAL FIELD OF THE INVENTION

[1] The present invention relates to improvements applied to portable food tray with beverage holder, more precisely, a tray with multiple individual compartments for accommodation of various foods such as small meals, snacks, side dishes, among others sold in establishments such as diners, restaurants and "Fast-Food" chains. Said portable tray ensures that, among the compartments, a channel for fitting the user's forearm is formed in the longitudinal direction of the tray, which goes on to a peripheral gap that surrounds the cup, can or bottle holder; said channel and peripheral gap sets an ergonomic hold, able to surround the user's forearm and hand, so that while the user carries the tray in one arm and hand with total balance and safety, the other hand has all the freedom to handle silverware, pick up a cup or a bottle, handle wallet, purse, mobile, among other tasks.

HISTORY OF THE ART

[2] Since the bursting of the internet on the worldwide market, the world has seen technology as a primary tool for communication, communication is extremely fast. The fast movement of information has affected various sectors of the worldwide economy, what has been requiring from society a development such as the one that has been demanded. Said demand has affected the society in such way that it created immediatists people, that is, people who search for fast answers for all the areas of its life. The food sector was one of the most affected since people seek to eat as fast as they communicate, it is the so-called "Fast-food generation". Therefore, food companies began to invest in food holders and/or trays so that users could handle food without major difficulties, besides providing a way to carry food as efficiently as the fast technology.

[3] The tray was designed to assist the user in the food carrying, being from the restaurant to the table or from the restaurant to another location (Office, park, and others).

[4] Currently, trays are made of various types of materials. Most common trays are manufactured in polypropylene or another similar material, presenting varied colors

and the shape is generally rectangular. The base is flat and has a surrounding edge, preferably represented by a short angled peripheral wall with a clinched cornice. In the edges of smaller dimension, handles are developed to improve handling the tray during the carrying of the food.

[5] Said rectangular trays have the benefit of the easy manufacture due to the fact that its rectangular shape does not hinder its demolding by the reproducing machines. Any other shape than the rectangular one must have its molding designed in a way that doesn't compromise the demolding.

[6] Another inconvenience found in current trays is the fact that most of them don't have a cup or bottle's holder. About the ones that have, however, it can be said that such feature is not adequately applied, since in most cases it is too shallow, affecting the cup's seating and often deforming its structure, which causes discomfort and insecurity to the user.

[7] The vast majority of trays has a corrugated surface to form a grip which prevents the plate, cup and silverware from sliding when being carried, mainly along the course from the sales point to the food court's table, making the consumer hold the tray with a hand on each side of the tray in order to keep it balanced. Often, one of the hands even stretches to hold the cup.

[8] Thus, the movement limitations on current trays is confirmed since both hands hold the tray and deprive the consumers of the freedom to deal with other matters such as carrying a purse, a backpack, the guidance and attention to young children during the course to the food court's table and etc.

[9] Another inconvenience is the fact that certain types of trays don't protect the user's hand against high temperatures caused by the food, which heats the recipients and, in turn, heats the user's hand.

[10] The applicant, active in the field as developer of similar products, is the owner of the request document No. PCT/BR2016050079 which features all compartments for food and beverage with equal depths, while the ergonomic channel is slightly elevated relative to the tray's upper surface in order to create an accommodation region for the forearm. It happens that this formation, despite being substantially innovative

compared to what was known in the market, presents a certain degree of complexity relative to the mold to be manufactured, resulting in a cost not yet optimized before the market needs.

ANALYSIS OF THE BACKGROUND ART

[11] In research carried out in a specialized database, documents relating to trays for accommodating food were found, such as the document No. MU 8800220-9 that deals with a tray for snacks and alike and consists essentially of a prismatic tray that forms an inner gap, having two circular cavities with concentric triangular locks, besides having equally rectangular cavities of distinct dimension with trapezoidal and triangular locks in symmetrical and opposed position, each determined to receive certain part of the meal.

[12] The document No. US5346070 relates to a portable tray for food accommodation and a beverage recipient with a lower opening in which the user's hand fits. Said tray consists of two semi-circular cavities for food accommodation, united by a central circumference where a cup, through which the user holds the tray, may be attached.

[13] The document No. WO2016008569 features a tray for food accommodation, said tray possesses three compartments distributed so that the user's forearm sit among them through a lower cavity displayed on the tray itself, the extension of said arm's settlement ends when it holds the beverage holder, which in turn is attached to the tray.

[14] The document No. MU-8103143-2 relates to the individual disposable tray for snacks, with or without cover, to be used in diners, restaurants and alike, consisting of a box, made of cardboard or alike, with holes on one of the sides for finger placement, a larger hole at the upper for placement of recipients with liquids and a compartment next to the hole for placement of edibles.

[15] The document No. US6264026, reveals a tray shaped similarly to a "comma" with recipient for food and beverage, said tray possess surface for the forearm's docking.

[16] The document No. KR20140075654 relates to the tray piled up with beverage

holder in a way that the food tray doesn't occupy much space. Therefore, when the user seats to eat the food or moves, the cup containing the drink does not fall down.

[17] The document No. US5697512 presents a tray that can be maintained and stabilized using a hand and a forearm. Said tray also allows the use as support for clipboards.

[18] The documents mentioned in the above paragraphs, although they belong to the same application field, that is, a tray for carrying food, don't have any of the features of the object perfected herein, thus, ensuring that it meets the legal requirements of patentability.

OBJECT OF THE INVENTION

[19] Thus, thinking of providing improvements to the consumer market, the applicant has developed improvements applied to portable food tray with beverage holder, more precisely, a tray with multiple individual compartments for accommodation of various foods such as small meals, snacks, side dishes, among others. Said tray has, as its biggest particularity relative to the object of document No. PCT/BR2016050079 , of the same applicant, the fact that the longitudinal channel and the gap that surrounds the cup, bottle or can holder are made in the same plane as the tray's upper surface, facilitating the mold's manufacturing, besides having the cup (or bottle, or can) holder with radial recessed sections that make it easier to extract the mold as well as set the tangencial hold to better fixate the cup or bottle.

[20] Said tray comprises a single piece manufactured in engineering polymer or another appropriate material, such as polypropylene and is divided, preferably in six compartments. The walls of the compartments of wider dimension present bumps in semicircular section, which act as bracings, that is, structural reinforcement.

[21] The cavity developed for accommodation of can, cup or bottle beverage is preferably arranged in the center of the tray so that the arrangements of said peripheral compartments relative to the cavity sets an ergonomic channel below the tray's plane face that allows the penetration of part of the forearm and hand of the user, allowing the fingers to wrap around, mainly, the walls of the central cavity.

[22] These settings allow the carrying of the tray to be done with only one of the

user's hands, protecting the person's hand against high temperatures and fixing the beverage on the holder, what gives the user freedom to do other movements, bringing a lot of comfort for the user while carrying and manipulating the food during the consumption and even when it is necessary to use the wallet, purse, cell phone and others.

DESCRIPTION OF THE DRAWINGS

[23] Complementing the present description in order to obtain a better understanding of the invention's characteristics and in accordance to a preferred embodiment thereof, a set of drawings is attached to the description, in which it's mechanics are represented in an exemplifying, although not limiting, manner.

Figure 1 depicts an upper perspective view of the referred tray;

Figure 2 reveals a lower view, illustrating a support area for part of the forearm and hand of the tray's user;

Figure 3 shows a view in a longitudinal cut A.A indicated on the previous Figure, illustrating the side area of the support of the user's forearm;

Figure 3A depicts a view in a longitudinal cut B.B indicated in Figure 3, illustrating the section of the beverage holder; and

Figure 3B depicts a view in a longitudinal cut C.C indicated in Figure 2, illustrating the food compartment area and the bracings bumps.

DESCRIPTION OF THE INVENTION

[24] Regarding the illustrated figures, the present invention relates to "IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER", more precisely, a tray (10) with dividing walls forming multiple individual compartments (13), (14) and (15) for accommodation of various foods, such as small meals, snacks, side dishes, among others, and a cup, can or bottle (L) type beverage holder (16); said tray's (10) type comprises a longitudinal ergonomic channel (CE) associated with a gap (V) established between the beverage holder (16) and the inner walls of the said compartments (13), (14) and (15), allowing the user's forearm (AB) to accommodate in the ergonomic channel and the hand (M) to involve the beverage holder's (16) external wall (16a) (See Figure 2). Said tray (10) comprises a single piece manufactured in

engineering polymer or another appropriate material such as polypropylene.

[25] According to the present invention, the tray comprises wider dimension compartments for food (13) and smaller dimension compartments (14) and (15) for accommodating sauce and silverware, preferably and respectively, that are protected by an upper plane (17) that can present peripheral edge (18) with any shape, preferably oblong and with a clinched cornice.

[26] The compartments (13), (14) and (15) present varied depths divided from each other by plane and co-planar surface (P1) sectors relative to the ergonomic channel's (CE) upper wall (P2), which, in turn, is co-planar relative to the wall (P3) that forms the gap (V) region and involves the beverage holder's (16) compartment. Thus, the walls (P1), (P2) e (P3) are co-planar relative to each other and settle with the tray's (10) peripheral edge (18).

[27] The setting association of the compartments (13), (14), (15) e (16) composes the longitudinal ergonomic channel (CE) displayed below the tray's (10) upper plane (17), which has a width designed for accommodation of part of the user's forearm (AB) and hand (M), so that the fingers may wrap around the compartment's (16) external surface.

[28] The compartment (16), named as "beverage holder which can be presented in the form of a cup, can or bottle (L)", comprises a central cavity in the gap (V), which is formed by a base (16a) and a side that has at least three equidistant waved sectors (16'), (16'') and (16''') facing the center of the said cavity; each waved sector (16'), (16'') and (16''') sets up a wall that is tangent relative to the beverage's surface (L), acting as soft holds during the handling of the tray. The spacing regions (R1) among the waved sectors (16'), (16'') and (16''') are formed by recessed arcs relative to the beverage's surface (L), reducing the induced heat exchange (by contact).

[29] The formation of the compartment (16) has as technical characteristic the fact that the waved sectors (16'), (16'') e (16''') and regions (R1) facilitate the tray's extraction relative to the injection mold.

[30] The walls' (20) internal surfaces (19) that set the side of each of the wider dimension compartment (13) present bumps of semicircular section (11) sequentially

distributed in an equidistant and parallel manner along all the referred walls (19), in a way to form multiple indentations (21) on said wall (20); this setting (19/21) acts as heat protection to the user's forearm (AB) and hand (M) against the food high temperatures, besides acting as a bracing, that is, structural reinforcements in said walls (20). These bumps (11) slightly advance (11a) on the bases (12) of each mentioned wider dimension compartment.

[31] When the present invention is put into practice, modifications may be introduced regarding the details of construction and shape, without compromising the fundamental principles that are clearly substantiated within the scope of the claims.

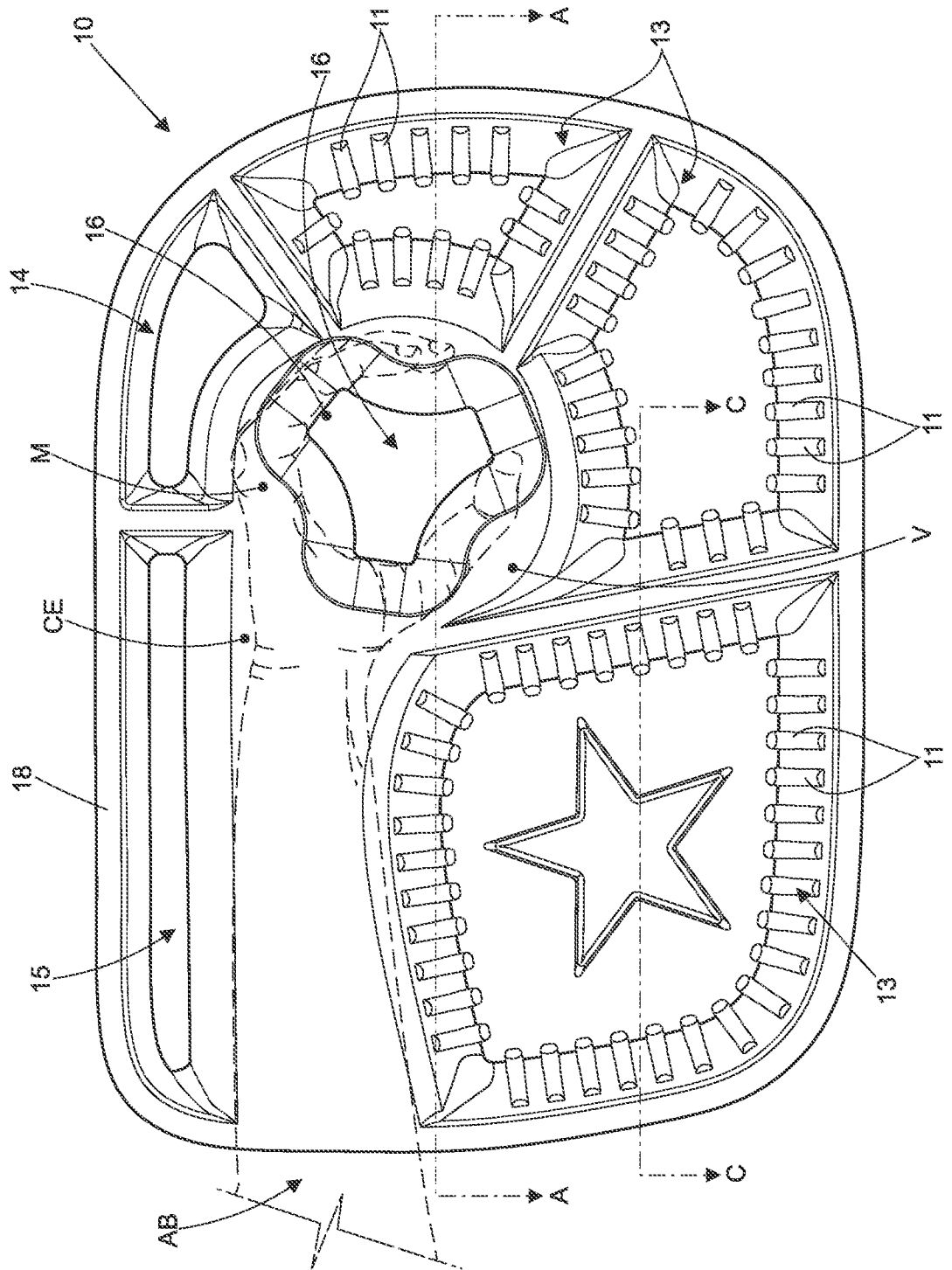
CLAIMS

1) "IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER", more precisely, a tray (10) with dividing walls (P) forming multiple individual compartments (13), (14), and (15), for accommodation of various foods, such as small meals, snacks, side dishes, among others, and a cup (CP), can or bottle type beverage holder (16); said tray's (10) type includes a longitudinal ergonomic channel (CE) associated with a gap (V) arranged between the inner walls of said compartments (13), (14) and (15) and the beverage holder (16); comprising a central cavity in the gap (V), which is formed by base (16a) and side wall that has at least three equidistant waved sectors (16'), (16'') and (16''') facing the center of said cavity; each waved sector (16'), (16'') and (16''') sets up a wall that is tangent relative to the beverage's surface (L) acting as the beverage's soft hold during the handling of the tray; the spacing regions (R1) among the waved sectors (16'), (16'') and (16''') are formed by recessed arcs relative to the beverage's surface (L); said watertight compartments (13) have the internal surfaces (19) of the walls (20) with bumps of semicircular section (11), sequentially distributed in an equidistant and parallel manner along all the referred walls (20), forming multiple indentations (21); said bumps (11) slightly advance (11a) on the bases (12) of each mentioned compartment of wider dimension.

2) "IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER", according to claim 1, comprising compartments (13), (14) and (15) have varying depths divided from each other by surface (P1) sectors and are plane and co-planar relative to the ergonomic channel's (CE) top wall (P2), which is in turn, co-planar relative to the wall (P3) that forms the region of the gap (V) by involving the compartment for the beverage holder (16) .

3) "IMPROVEMENTS APPLIED TO PORTABLE FOOD TRAY WITH BEVERAGE HOLDER", according to claim 1, comprising a setting (19/21) that acts as thermal protection to the forearm (AB) and hand (M) of the user.

FIG.2



INTERNATIONAL SEARCH REPORT

International application N°

PCT/BR2017/050038

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A45C 11/20 (2006.01), A47G 19/06 (2006.01), A47G 19/00 (2006.01)
CPC: A47G 19/065

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A45C, A47G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

INPI/BR Database

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO e Espacenet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claims N°
Y A	WO 2016008569 A1 (J E A R S R L [IT]) 21 January 2016 (2016-01-21) (the whole document)	1, 3 2
Y A	----- US 6264026 B1 (VICENT H. BRADLEY [US]) 24 July 2001 (2001-07-24) (the whole document)	1, 3 2
Y A	----- US 5713619 A (TENNECO PACKAGING INC [US]) 03 February 1998 (1998-02-03) (the whole document)	1, 3 2
Y A	----- US D363879 S (KRUPA ET AL. [US]) 07 November 1995 (1995-11-07) (the whole document)	1, 3 2

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining state of the art which is not considered to be of particular relevance

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"&" document member of the same patent family

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Date of mailing of the international search report

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Name and mailing address of the ISA/BR



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INTERNATIONAL SEARCH REPORT
Information on patent family members

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Patent documents cited in search report	Publication date	Patent family members	Publication date
WO 2016008569 A1 -----	2016-01-21 -----	None -----	
US 6264026 B1 -----	2001-07-24 -----	US 5971139 A -----	1999-10-26 -----
US 5713619 A -----	1998-02-03 -----	None -----	
US D363879 S -----	1995-11-07 -----	None -----	