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54 **A BOTTLE CASE.**

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Description

This invention relates to a bottle case having a side wall thereof provided with outlets through which bottles are to be removed from the case and comprising at the bottom thereof a set of compartments formed by vertical separating walls and outer case walls for the sideways support of the lower portions of the bottles, whereby at least three adjacent compartments are positioned at each outlet and those walls of the compartments which are perpendicular to the plane of the outlet are provided with supporting means projecting from said walls for supporting the bottles in the direction of said walls, and the separating walls positioned at the bottle outlet and extending at right angles to the plane of the outlet are resiliently bendable in the sideways direction.

This kind of bottle case is known from DE—A—3 410 435. The separating walls of the compartments are on both sides provided with projecting supporting means which according to one embodiment can be formed by protuberances. The bottles can be removed through the outlet one at a time, because the separating walls are bendable at the protuberances so that they are displaced into the adjacent compartments when a bottle is being removed from the case. On the contrary, the supporting means cannot be displaced away from the part of the bottles, if all the bottles in a row positioned in parallel with the plane of the outlet try to get out at the same time through the outlet, because the displacing forces exerted on the supporting means by adjacent bottles compensate each other. Therefore the bottles do not fall out of the case when the case is tilted e.g. during the transportation because the case is then full.

Said DE—A—3 410 435 discloses a bottle case the outlet of which has the width of four compartments, i.e. four bottles are positioned at the outlet. Besides this case type, cases are known which are intended for smaller bottles, e.g. for bottles of about 0.3 liters, in which six bottles can be fitted in the direction of the length of the case and in which a vertical pillar is provided in the middle of the side opening of the case so that there are two outlets on the long sides of the case, with three compartments at each outlet.

The bottle locking system disclosed in the above mentioned patent specification can be successfully applied to the case type mentioned above. However, the present invention is based on the realization that it is in this case type in particular that the bottle locking system can be further simplified and at the same time made even more reliable. In the known locking system, it is possible that the supporting means yield when a very forceful shock-like force is exerted on the bottles and, additionally, the protuberances may wear in a long-term use to such an extent that the locking of the bottles is deteriorated.

The object of the present invention is to provide a bottle case which is provided with outlets having the width of at least three compartments and in

which the locking of the bottles is more reliable than previously and the wearing of the supporting means is not as disadvantageous as in the known system. The bottle case according to the invention is characterized in that the supporting means of the middlemost compartment(s) of the compartments positioned at each outlet are positioned at a different distance from the plane of the outlet than the supporting means of the outermost compartments.

The supporting means being positioned as described above, the bottles are tilted in different degrees in their compartments when a full case is tilted during the transportation, and thereby the separating walls of the compartments, are bent in the sideways direction. The openings of the compartment(s) in which the bottles are positioned farther away from the outlet become narrower when the separating walls are bent, whereas the width of the opening of the two other compartments or the third compartment is increased.

By means of the structure according to the invention, bottles can be locked in a bottle case more reliably than previously. In addition, the wearing of the supporting means is not as disadvantageous as in the known solution.

The supporting means are preferably so positioned that the supporting means of the middlemost compartment are positioned farther away from the outlet than the supporting means of the outermost compartments. This embodiment ensures that the bottles are locked properly because the outermost bottles wedge the middlemost bottle in position by bending the separating walls by the weight thereof towards the middlemost compartment.

According to one very advantageous embodiment, the supporting means of the outermost compartments are formed by a per se known stationary shoulder attached to the wall of the case. According to this embodiment, the supporting means of the above-mentioned patent specification can be wholly left out from the outermost compartments, which, of course, simplifies the structure. This embodiment is also advantageous in that because the supporting means of a compartment is formed by a stationary shoulder of the wall, the bottles are forced to move towards the middle of the outlet when they are tilted towards the outlet, on account whereof the wedge effect of the bottles are increased.

At its simplest, the shoulder can be formed by the edge of the outlet, which edge projects from the inner surface of the end wall of the case or from the surface of an unyielding separating wall.

One preferred embodiment of the bottle case according to the invention will be described in more detail below with reference to the attached drawing, wherein

Figure 1 is a side view of a bottle case according to the invention,

Figure 2 is a top view of the bottle case,

Figure 3 illustrates a situation where the bottles are tilted as a section along the line III—III shown in Figure 1, and

Figure 4 is a side view of a part of a separating wall.

The bottle case, preferably manufactured of a plastic material, is provided with two side walls 1 and 2 and two end walls 3 and 4. The end walls have small openings (not shown), and the side walls are both provided with two openings 5 and 6 which are separated from each other by a vertical pillar 7 of the side wall. The openings 5, 6 serve as outlets for the bottles when the bottle cases are piled up one upon another in a shop; the outlets being sufficiently high for the closures of the bottles to be positioned below the upper edge of the outlets in a normal case, as appears from Figure 1. The bottles are indicated by the reference numeral 8. The lower edge of the outlets 5, 6 is wave-like in such a manner that the distance between the wave peaks corresponds to the inner diameter of the bottle.

The case has a bottom 9 formed of crosswise plastic ribs, and a set of compartments 10 is positioned on the bottom for the separation of the bottles from each other. The compartments are formed by separating walls 11 extending longitudinally, i.e. in parallel with the plane of the outlets 5, 6, and separating walls 12 extending perpendicularly to said walls 11 and thereby also to the plane of the outlets. The longitudinal separating walls 11 have the same wave shape as the lower edge of the outlets. The upper edge of these separating walls is positioned slightly above the level of the lower edge of the outlets. The smallest height of the separating walls 11 corresponds to about 20 per cent of the height of the bottles. The transversal separating walls 12 are higher than the other separating walls, and they are attached to the side walls 1, 2 as shown in Figure 4, wherefrom it appears that a slit 13 is provided between the upper portion of the separating walls and the side walls for facilitating the displacement of the separating walls in the sideward direction with respect to the side walls 1, 2. A separating wall 14 which is more steady than the other separating walls and which does not yield in the sideward direction is provided between the vertical pillars 7.

As can be seen from the figures, the outlets 5, 6 and the distance between the separating walls 11, 12 are so dimensioned that there are three compartments at each outlet. In order to support bottles positioned in the corners of the side and the end walls, the inner surface of the end walls 3, 4 is provided with arched recesses 15. The separating walls 12, which extend perpendicularly to the bottle outlets 5, 6, are further provided with protuberances 16 acting as supporting means.

According to the invention, the supporting means 16 of the middlemost compartment of the compartments positioned at each outlet 5, 6 are positioned at a different distance from the outlet than the supporting means of the outermost compartments. In the embodiment shown in the drawings, this has been effected by positioning protuberances 16 acting as supporting means on the separating walls 12 defining the middlemost

compartment at each outlet on those surfaces thereof which face said middlemost compartment. The protuberances are so positioned that when a bottle 8 is placed in an upright position into the compartment, it is lightly pressed against the protuberances so that the protuberances are positioned at a short distance from the side walls 1, 2 of the case.

The outermost compartments, i.e. those defined by the end walls 3, 4 and the separating wall 14 positioned in the middle, do not have any supporting means of the above-described type; instead, bottles positioned in these compartments are supported solely by the vertical edges 17 and 18 of the outlets 5, 6, which edges project from the inner surface of the end walls 3, 4 of the case, thus forming a shoulder adjacent the opening of these compartments. By virtue of these shoulders the width of the outermost compartments beside the outlets is slightly smaller than the width of the middlemost compartment.

When the bottle case according to the invention is in use, it is filled with bottles 8 at the brewery; the bottle case shown in the drawing accomodating 24 bottles. When the cases are transported from the brewery to the shops, e.g. by a lorry, the load may swing so that the bottles tend to get out through the outlets 5, 6. This kind of situation is shown in Figure 3. As there are no kind of hindrances provided, the outermost of the bottles 8 positioned at each outlet are tilted outwards by the swinging movement so that the bottle closures are positioned substantially in the plane of the outlet. The bottles are simultaneously turned towards each other by virtue of the vertical edges 17, 18 of the outlets, as a result of which the bottles press the resilient separating walls 12 defining the middlemost compartment nearer to each other. By virtue of the supporting means 16, the middlemost bottle is not able to tilt as much as the outermost bottles, whereby it does not prevent the separating walls 12 from bending as shown in Figure 3.

It is apparent from Figure 3 that the outermost bottles wedge the middlemost bottle in position. The width of the outermost compartments beside the outlet is so small that the bottles positioned therein are not able to get out of their compartments even though they were tilted to a relatively large extent. As a result of the above-described, the bottles remain in the bottle case during the transportation in spite of the swinging of the load.

When the bottle case is in the shop, one bottle at a time can be removed through the outlets by gripping the bottle neck by hand, by tilting the bottle outwards and by drawing it out of the case through the outlet. It is easiest to start the removal of the bottles from the bottle positioned in the middle compartment. When this bottle is removed, the separating walls 12 are displaced slightly apart from each other in the area of the supporting means 16 so that the bottle can be passed by the supporting means. While in the upright position, the bottles positioned in the outermost compartments do not prevent the

bending of the separating walls. After the middlemost bottle has been removed, the two other bottles can be easily removed from their compartments on account of the bending of the separating walls 12.

The supporting means can also be positioned so that the supporting means of the middlemost compartment are positioned closest to the outlet and the supporting means of the outermost compartments farther away from the outlet. In this case the supporting means of the middlemost compartment must be dimensioned so that the middlemost bottle remains in its compartment simultaneously as it presses the separating walls apart from each other through the supporting means when it is tilted so that the outermost bottles are wedged in position. The shape of the supporting means can differ from that shown in the drawing.

Even though the invention has been described with reference to a bottle case, the solution according to the invention can be applied to transporting boxes in general, in which cylindrical objects are transported. If desired, the case can be constructed so that there are outlets on one side wall only. It is further to be understood that the case can be larger than the described, if required, so that the side wall is provided with three or more outlets in sequence. The invention is operative even when there are four compartments at each outlet.

Claims

1. A bottle case having a side wall (1, 2) thereof provided with outlets (5, 6) through which bottles (8) are to be removed from the case and comprising at the bottom thereof a set of compartments formed by vertical separating walls (11, 12) and outer walls (1 to 4) for the sideways support of the lower portions of the bottles, whereby at least three adjacent compartments are positioned at each outlet (5, 6) and those walls (3, 4, 12) of the compartments which are perpendicular to the plane of the outlet (5, 6) are provided with supporting means (16, 17, 18) projecting from said walls for supporting the bottles in the direction of said walls, and the separating walls (12) positioned at the bottle outlet and extending at right angles to the plane of the outlet are resiliently bendable in the sideways direction, characterized in that the supporting means (16) of the middlemost compartment(s) of the compartments positioned at each outlet (5, 6) are positioned at a different distance from the plane of the outlet (5, 6) than the supporting means (17, 18) of the outermost compartments.

2. A bottle case according to claim 1, wherein there are three compartments at the outlet, characterized in that the supporting means (16) of the middlemost compartment are positioned at a greater distance from the outlet (5, 6) than the supporting means (17, 18) of the outermost compartments.

3. A bottle case according to claim 1 or 2,

characterized in that the supporting means of the outermost compartments are formed by a per se known stationary shoulder (17, 18) attached to the wall of the case.

4. A bottle case according to claim 3, characterized in that the shoulder is formed by the edge (17, 18) of the outlet, which edge projects from the inner surface of the end wall (3, 4) of the case from the surface of an unyielding separating wall (14).

Patentansprüche

1. Flaschenkasten mit einer Seitenwand (1, 2), welche mit Auslässen (5, 6) versehen ist, durch welche Flaschen (8) aus dem Kasten entnommen werden können, und mit einem im unteren Bereich vorgesehenen Satz von Fächern, welche zur zeitlichen Stützung der unteren Teile der Flaschen durch senkrechte Trennwände (11, 12) und Außenwände (1 bis 4) gebildet sind, wobei an jedem Auslaß (5, 6) wenigstens drei angrenzende Fächer angeordnet sind, wobei diejenigen Wände (3, 4, 12) der Fächer, welche lotrecht zur Ebene des Auslasses (5, 6) verlaufen, mit Stützmitteln (16, 17, 18) versehen sind, welche aus den Wänden herausragen, um die Flaschen in Richtung der Wände zu stützen und wobei die Trennwände (12), welche an dem Flaschenauslaß angeordnet sind und sich rechtwinklig zur Ebene des Auslasses erstrecken, in seitlicher Richtung federnd verbiegbar sind, dadurch gekennzeichnet, daß die Stützmittel (16) des mittlersten Fachs bzw. der mittlersten Fächer von den an jedem Auslaß (5, 6) angeordneten Fächern in einem anderen Abstand zur Ebene des Auslasses (5, 6) als die Stützmittel (17, 18) der äußersten Fächer angeordnet sind.

2. Flaschenkasten nach Anspruch 1, wobei am Auslaß drei Fächer vorhanden sind, dadurch gekennzeichnet, daß die Stützmittel (16) des mittlersten Fachs in einem größeren Abstand vom Auslaß (5, 6) als die Stützmittel (17, 18) der äußersten Fächer angeordnet sind.

3. Flaschenkasten nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Stützmittel der äußersten Fächer durch eine an sich bekannte stationäre Schulter (17, 18) gebildet sind, welche an der Wand des Kastens angebracht ist.

4. Flaschenkasten nach Anspruch 3, dadurch gekennzeichnet, daß die Schulter durch diejenige Kante (17, 18) des Auslasses gebildet ist, welche aus der inneren Oberfläche der Stirnwand (3, 4) des Kastens oder aus der Oberfläche einer unnachgiebigen Trennwand (14) hervorragt.

Revendications

1. Casier à bouteilles dont une paroi latérale (1, 2) possède des orifices (5, 6) à travers lesquels des bouteilles (8) sont extraites du casier et dont le fond comprend un certain nombre de compartiments formés par des cloisons verticales (11, 12) et qui présente des parois extérieures 1 à 4 supportant latéralement les parties inférieures des bouteilles, au moins trois compartiments

successifs étant ainsi placés en regard de chaque orifice (5, 6), les parois (3, 4, 12) des compartiments qui sont perpendiculaires au plan de l'orifice (5, 6) présentant des moyens de support (16, 17, 18) faisant saillie desdites parois pour supporter les bouteilles dans la direction desdites parois, les cloisons (12) qui sont placées à la sortie des bouteilles et s'étendent à angle droit par rapport au plan de l'orifice de sortie pouvant être élastiquement fléchies dans la direction latérale, caractérisé en ce que les moyens de support (16) du (des) compartiment(s) central (centraux) par rapport aux compartiments situés en regard de chaque orifice (5, 6) sont placés à une distance par rapport à l'orifice (5, 6) différente de celle des moyens de support (17, 18) des compartiments latéraux.

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2. Casier à bouteilles selon la revendication 1, dans lequel trois compartiments sont situés en regard de l'orifice, caractérisé en ce que les moyens de support (16) du compartiment central sont placés à une distance par rapport à l'orifice (5, 6) qui est supérieure à celle des moyens de support (17, 18) des compartiments latéraux.

3. Casier à bouteilles selon la revendication 1 ou 2, caractérisé en ce que les moyens de support des compartiments latéraux sont formés par une épaulement rigide (17, 18) connue en soit et solidarisée à la paroi du casier.

4. Casier à bouteilles selon la revendication 3, caractérisé en ce que l'épaulement est constituée par le bord (17, 18) de l'orifice, ce bord faisant saillie de la surface intérieure de la paroi terminale (3, 4) du casier ou de la surface de la cloison rigide (14).

FIG. 1

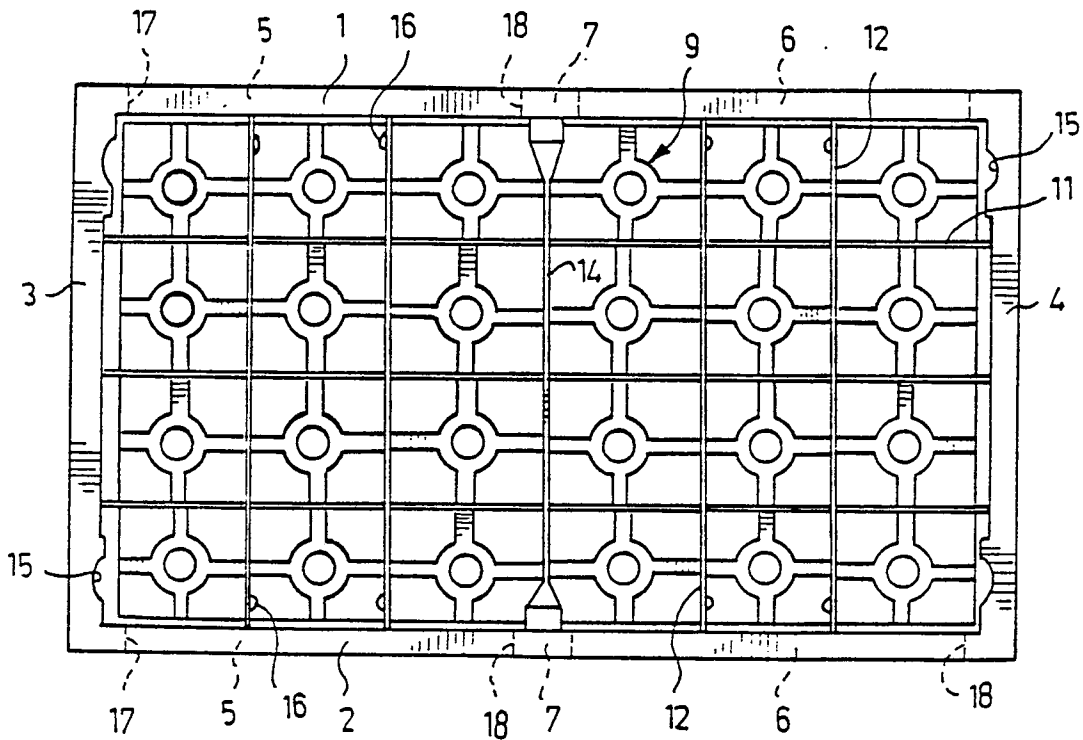
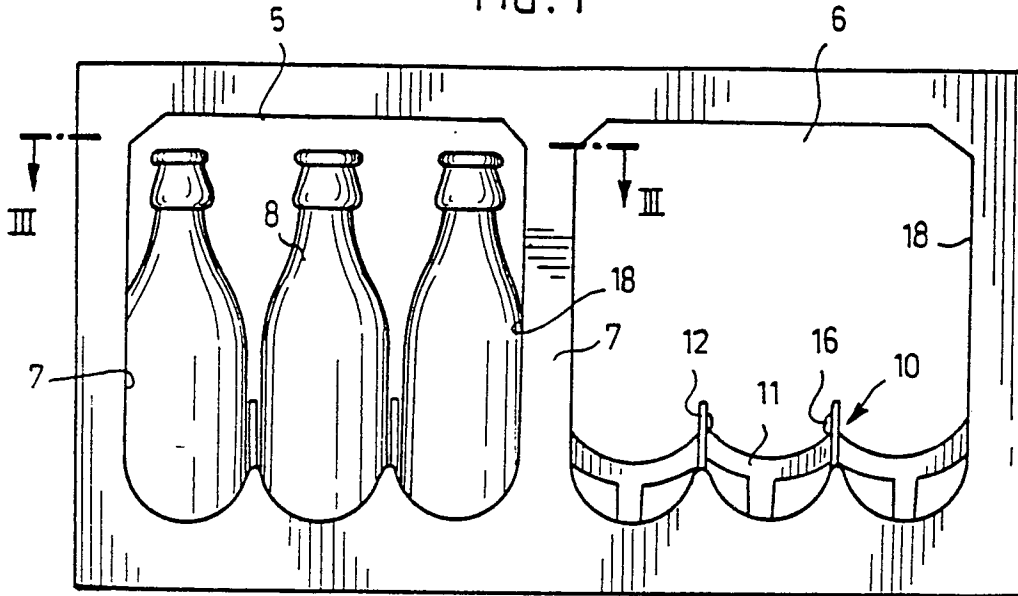


FIG. 2

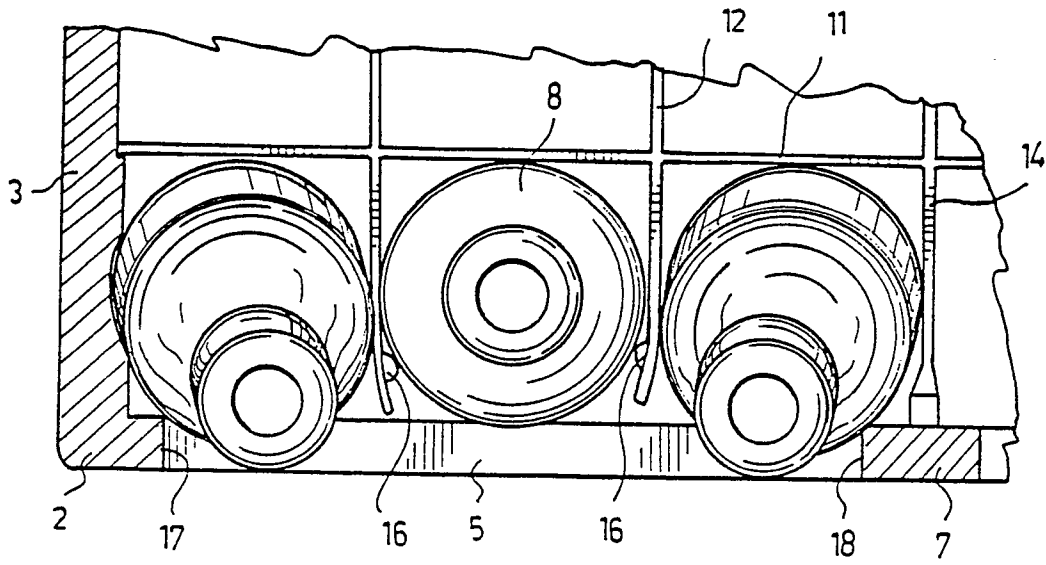


FIG. 3

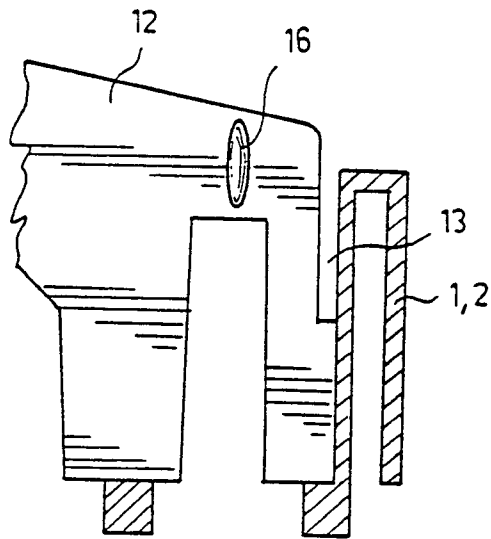


FIG. 4