

PATENT SPECIFICATION

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DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Improvements in or relating to a Crate for Carrying Bottles.

We, KYOWA DENKI KAGAKU KABUSHIKI KAISHA and MITSUBISHI YUKA KABUSHIKI KAISHA, both Corporations organised under the laws of Japan, of No. 711, Sanda-Higashi-cho, Hachioji-shi, Tokyo, and No. 4, 2-chome, Marunouchi, Chiyoda-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a crate for carrying bottles, and more particularly to a plastics crate for carrying bottles of the type which are reduced in diameter towards the lower portion and again increased in diameter at the lowermost portion so as to form an enlarged diameter base, said crate being provided with a means to prevent the bottles from coming out even when the crate is placed in a laterally facing position.

Bottles for containing a beverage are normally accommodated in a crate in the number of a dozen or two-dozen and, when the crate is carried with the bottles therein, the crate is usually held at one edge by one hand, without being held horizontally by both hands. In carrying the crate in the manner described, the bottles contained therein frequently come out therefrom due to the sway of the crate during transportation with the top opening thereof facing laterally.

An object of the present invention, therefore, is to obviate the foregoing drawbacks possessed by conventional crates.

Accordingly the present invention provides for use in carrying bottles of the type having an enlarged diameter base portion, a plastics crate partitioned to provide individual single-bottle compartments wherein each

compartment has at least one wall part provided with a pair of spaced substantially parallel ribs which project into the compartment and extend substantially perpendicularly with respect to the crate bottom, from the top of the compartment to a termination point intermediate the top and bottom thereof, said ribs in each compartment being arranged to cooperate with the enlarged diameter base of a bottle when placed in said compartment to prevent or hinder fall out of the bottle due to tilting of the crate.

For a better understanding of the present invention and to show how the same may be carried into effect reference will now be made to the accompanying drawing, in which:—

Figure 1 is a perspective view of the crate of the present invention, for carrying bottles, with a portion of the crate being shown broken away,

Figure 2 is a cross sectional view taken along the line II—II of Figure 1,

Figure 3 is an enlarged plan view of a portion of the crate of the present invention for carrying bottles, and

Figure 4 is an enlarged cross sectional view taken along the line IV—IV of Figure 3.

Referring now to the drawing which shows the present invention as applied to a two-dozen crate, a crate 1, as clearly shown in Figure 1, has a depth of approximately one half of the height of the bottles to be accommodated therein and has a cavity defined by a pair of side walls 2 and 2¹ and a pair of end walls 3 and 3¹, said cavity being partitioned by a plurality of transversely extending partitions 4 and a plurality of longitudinally extending partitions 5, arranged in perpendicularly crossing relation into a multi-

[Price 4s. 6d.]

Price 25p

plicity of individual single bottle compartments. In each of the end walls 3 and 3¹ of the crate 1, there is formed a hole 7 at the centre thereof for the insertion of a hand. The longitudinally extending partition 5 located at the centre of the crate is formed at the portions where it is connected to the end walls 3 and 3¹ with cut-outs 8 which communicate with the respective holes 7 so as to facilitate the insertion of a hand (see Figure 2). Each of the holes 7 is provided with a flange 9 around the periphery thereof for protecting the hand by preventing the edge of the hole from cutting into the hand when the crate is being carried thereby.

The side walls 2 and 2¹ and the end walls 3 and 3¹ of the crate 1 and their joints are adequately reinforced with external ribs 10, while the bottom wall 11 is formed therein with a number of holes 12 for the purpose of quick draining of washing water as well as reducing the weight of the crate, said bottom wall being also reinforced by the ribs 10 so as to impart an adequate rigidity to the crate. The crate 1 may be advantageously formed integrally by moulding from a plastics material such as polyethylene.

In the crate 1 of the present invention, the partitions 4 and 5 defining each compartment 6 are formed at their lower parts with substantially rectangular cut-outs 13, 14 respectively, while each compartment has at least one wall part provided with a pair of spaced substantially parallel ribs 15 and 16 which project into the compartment from the centre of the respective partition with which they are formed integrally. The ribs extend substantially perpendicularly with respect to the crate bottom 11, from the top of the compartments to a termination point intermediate the top and bottom of the compartments. This termination point is conveniently the top edge of the cut-outs 13, 14 and the ribs and cut-outs provide a means for preventing the bottle from coming out of the respective compartments. To explain more practically, when the crate 1 is hung by one hand at the hole 7, with a bottle 17 having an enlarged diameter base portion 18 being accommodated in a compartment 6 as shown in Figure 3 and 4, the base 18 of the bottle 17 engages the cut-out 13 formed at the lower part of the partition 4, with a portion of the side of the bottle resting on the pair of parallel ribs 15, whereby the bottle is stabilised. In carrying the crate in the condition described, the bottle will not fall out of the crate because the base 18 formed at the bottom thereof engages the lower ends of the ribs 15, even when the crate is swayed. Furthermore, since the pairs of ribs 15 are formed on the wall parts of each compartment 6 in a slightly spaced and substantially parallel relationship, the bottle

which has a circular cross section is held in position in an orderly manner while resting on said ribs, and therefore has less possibility of being shaken or rattled during transportation of the crate.

The pairs of ribs 15 and 16 which are formed integrally with the respective partitions 4 and 5, are sloped with their heights progressively decreasing towards the compartment tops, so that their shapes correspond to the side contour of the bottle 17 as shown in Figure 4. The formation of the ribs in such a manner contributes to the stability of the bottle 17 within the compartment 6, because the side surface of the bottle neatly rests on the edges of the ribs 15. Moreover, the sloped ribs as described above facilitate the removal of the partitions from a mould after having been moulded from a plastics material.

As will be apparent from the foregoing description, the present invention provides a crate for carrying bottles which is effective in its use for carrying bottles of the type, such as Coca Cola (Registered Trade Mark) bottles, which are initially reduced in diameter at the lower portion and then expanded to form an enlarged base 18 as shown in Figure 4. When the crate of the present invention is used for carrying bottles of the type described, the bottles will not come out of compartments 6 even when the crate is tilted vertically or further to a position at which the open top surface of the crate faces slightly downwardly.

Although the foregoing explanation was given with reference to a specific example, it should be understood that many modifications can be made to the present invention without departing from the scope of the invention. For instance, the application of the present invention is not limited to a two-dozen crate but the number of bottles to be accommodated in the crate of the present invention may be determined optionally, and the shape and dimensions of the crate may also be varied according to the occasional requirements.

WHAT WE CLAIM IS:—

1. For use in carrying bottles of the type having an enlarged diameter base portion, a plastics crate partitioned to provide individual single-bottle compartments wherein each compartment has at least one wall part provided with a pair of spaced substantially parallel ribs which project into the compartment and extend substantially perpendicularly with respect to the crate bottom, from the top of the compartment to a termination point intermediate the top and bottom thereof, said ribs in each compartment being arranged to cooperate with the enlarged diameter base of a bottle when placed in said

licity of individual single bottle compartments. In each of the end walls 3 and 3¹ of the crate 1, there is formed a hole 7 at the centre thereof for the insertion of a hand. The longitudinally extending partition 5 located at the centre of the crate is formed at the portions where it is connected to the end walls 3 and 3¹ with cut-outs 8 which communicate with the respective holes 7 so as to facilitate the insertion of a hand (see Figure 2). Each of the holes 7 is provided with a flange 9 around the periphery thereof for protecting the hand by preventing the edge of the hole from cutting into the hand when the crate is being carried thereby.

The side walls 2 and 2¹ and the end walls 3 and 3¹ of the crate 1 and their joints are adequately reinforced with external ribs 10, while the bottom wall 11 is formed therein with a number of holes 12 for the purpose of quick draining of washing water as well as reducing the weight of the crate, said bottom wall being also reinforced by the ribs 10 so as to impart an adequate rigidity to the crate. The crate 1 may be advantageously formed integrally by moulding from a plastics material such as polyethylene.

In the crate 1 of the present invention, the partitions 4 and 5 defining each compartment 6 are formed at their lower parts with substantially rectangular cut-outs 13, 14 respectively, while each compartment has at least one wall part provided with a pair of spaced substantially parallel ribs 15 and 16 which project into the compartment from the centre of the respective partition with which they are formed integrally. The ribs extend substantially perpendicularly with respect to the crate bottom 11, from the top of the compartments to a termination point intermediate the top and bottom of the compartments. This termination point is conveniently the top edge of the cut-outs 13, 14 and the ribs and cut-outs provide a means for preventing the bottle from coming out of the respective compartments. To explain more practically, when the crate 1 is hung by one hand at the hole 7, with a bottle 17 having an enlarged diameter base portion 18 being accommodated in a compartment 6 as shown in Figure 3 and 4, the base 18 of the bottle 17 engages the cut-out 13 formed at the lower part of the partition 4, with a portion of the side of the bottle resting on the pair of parallel ribs 15, whereby the bottle is stabilised. In carrying the crate in the condition described, the bottle will not fall out of the crate because the base 18 formed at the bottom thereof engages the lower ends of the ribs 15, even when the crate is swayed. Furthermore, since the pairs of ribs 15 are formed on the wall parts of each compartment 6 in a slightly spaced and substantially parallel relationship, the bottle

which has a circular cross section is held in position in an orderly manner while resting on said ribs, and therefore has less possibility of being shaken or rattled during transportation of the crate.

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compartment to prevent or hinder fall out of the bottle due to tilting of the crate.

2. A plastics crate according to claim 1 wherein each rib is of sloped form with the height thereof decreasing towards the top of a compartment.

3. A plastics crate according to claim 2 or claim 3 wherein each rib is generally rectangular in cross-section.

10 4. A plastics crate according to claim 3 wherein partition walls defining each compartment are provided with a cut-out portion in the lower part thereof and a pair of said ribs terminating at the top edge of the cut-out portion.

15 5. A plastics crate according to claim 4, in combination with at least one bottle of the type having an enlarged diameter base portion merging into a reduced diameter waist portion, wherein the ribs terminate on the lower part of the partition walls defining each compartment, at a distance at least equal to the distance from the bottle

base to the point at which the waist portion starts to flare into the base portion.

25 6. The combination according to claim 5, wherein each partition wall cut-out portion is dimensioned to accommodate the depending region of the enlarged base portion of the bottle when the crate is tilted as aforesaid.

30 7. The combination according to claim 5 or claim 6 wherein each pair of ribs is shaped to furnish line contact support for the bottle when the crate is tilted as aforesaid.

35 8. A plastics crate for use with bottles of the type having an enlarged diameter base portion substantially as hereinbefore described and as shown in the accompanying drawing.

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