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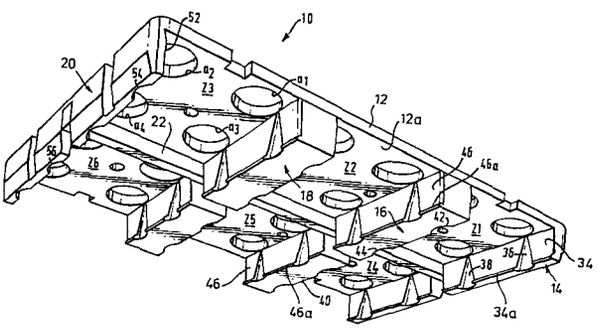
(54) Applicator device for applying carrier cartons to grouped articles.

(57) An applicator device (10) for applying at least one article carrier (c) to a group of articles (b) comprises a plate (12) having a locating zone (Z) for each article carrier, each zone being adapted to receive an erected article carrier having apertured top (24) and bottom (26) walls interconnected by spaced side walls (28, 30) to form a generally tubular structure. The plate has a plurality of spaced apertures (a) formed in each of the locating zones for registry with like spaced apertures formed in the top wall of said carrier. An arresting lip (34a, 46a) is carried by transverse walls upstanding from the plate in each of the locating zones for engagement with the bottom wall of the carrier adjacent one of the carrier side walls. The arrangement is such that the carrier automatically is held within the locating zone when the carrier is loaded by transverse movement of the carrier bottom and side walls caused when the applicator is applied to the group of articles.



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APPLICATOR DEVICE FOR APPLYING CARRIER CARTONS TO GROUPED ARTICLES

This invention relates to an applicator device for simultaneously applying a plurality of so-called top gripping type of carriers onto a number of articles arranged in a group. The invention is particularly suitable for applying top gripping carriers to bottles which are accommodated in a crate so that several multi-bottle packages are formed whereafter individual packages may be grasped and removed from the crate. The applicator device which comprises a reciprocal head is, but need not be, adapted to receive known top gripping carriers.

The invention provides an applicator device for applying at least one article carrier to a group of articles which device comprises a plate having a locating zone for each article carrier, each zone being adapted to receive an erected article carrier having apertured top and bottom walls interconnected by spaced side walls to form a generally tubular structure, said plate having a plurality of spaced apertures formed in each of said locating zones for registry with like spaced apertures formed in the top and base walls of said carrier, characterised by an arresting means carried by said plate in each of said locating zones for engagement with the bottom wall of said carrier adjacent one of the carrier side walls, the arrangement being such that the carrier automatically is held within said locating zone when that carrier is loaded into said applicator and

thereafter automatically released by movement of the carrier bottom and side walls caused when said applicator is applied to said group of articles.

An applicator device embodying the invention will now be described, by way of example, with reference to the accompanying drawings, in which:-

FIGURE 1 is a perspective view of an applicator head shown in operative position;

FIGURE 2 is a partial side view of the applicator head in which a top-gripping type bottle carrier is shown loaded into one of the locating zones of the applicator head; and

FIGURE 3 is a partial side view of the applicator head in which bottles are shown inserted in the bottle carrier.

Referring to the drawings, the applicator head 10 comprises a base plate 12 from one surface 12a of which a series of spaced transverse walls depend. The series of walls include a first end wall 14 which has its outermost face flush with one end of the base plate 12; a first intermediate wall 16 spaced from end wall 14; a second intermediate wall 18 spaced from intermediate wall 16; and a second end wall 20 spaced from intermediate wall 18 and which has its outermost face flush with the opposite end of the base plate. A longitudinal rib 22 extends centrally along surface 12a of the base plate and divides each of the transverse walls into two similar sections. The transverse walls and the longitudinal rib together define a number of carrier locating zones Z1-Z6. Thus, each locating zone is defined by a neighbouring pair of transverse walls and the longitudinal rib.

In each locating zone, the base plate is formed with four spaced circular bottle-neck receiving apertures e.g apertures a_1 - a_4 in zone Z_3, the spacing of which is chosen so

as to be in registry with aligned bottle-neck receiving apertures formed in the top and base walls of a suitably sized carton when positioned for loading in that locating zone.

By way of example, the carton 'c' shown schematically in end view in locating zone Z_1 in FIGURE 2 comprises substantially parallel top and bottom walls 24,26, respectively, interconnected by spaced side walls 28,30 respectively, and central upstanding partition panel 32, thereby forming a generally tubular structure. Top wall 24 and bottom wall 26 are each formed with four bottle neck receiving apertures 'A' located in registry.

Referring now more specifically to the applicator head construction, the first transverse end wall 14 has a downwardly and outwardly inclined inner face 34 which terminates remote from surface 12a of base plate 12 in an inwardly directed arresting lip 34a. The inner face 34 also is formed with arcuate downwardly divergent recesses 36,38 respectively, spaced for alignment with neighbouring bottle neck receiving apertures formed in the bottom panel of an adjacent bottle carrier. The arcuate recesses each provide clearance for receiving a portion of the periphery of a bottle neck when the bottle neck is inserted into an article carrier located in the locating zone.

Thus, end wall 14 provides one transverse end of locating zones Z_1 and Z_4 the opposite end of which is provided by face 40 of the first intermediate wall 16. Face 40 also is formed with arcuate recesses 42 and 44, respectively, which are similar to recesses 36 and 38 but which are spaced for alignment with the opposite bottle neck receiving apertures of the same adjacent bottle carrier 'C'. The opposite face 46 of the first intermediate wall 16 is of similar construction and includes arcuate recesses 48 and 50. However, face 46 terminates remote from surface 12a of base plate 12 in an arresting lip 46a for locating zones Z_2 and Z_5. The second

intermediate wall 18 is of similar construction to intermediate wall 16 described above and therefore provides an arresting lip for locating zones Z_3 and Z_6.

The second transverse end wall 20 also includes a downwardly and outwardly inclined inner face 52 but does not carry an arresting lip. Arcuate bottle neck clearance recesses 54, 56 are formed in the inner face 52 similar to those described in relation to end wall 14.

The applicator head is mounted for vertical reciprocal movement in a carton applicator machine which is adapted to receive a loaded crate of bottles beneath applicator head when in its raised position. At the beginning of a loading cycle flat carriers are withdrawn from a hopper, erected and correctly loaded into the locating zones of the applicator head by suitable loading means. Each locating zone e.g Zone Z_1 (see FIGURE 2) receives an erected carrier 'c' such that the natural resilience of the paperboard carrier which tends to return the carrier into its flat (non-erected) condition causes the base wall 26 of the carrier (adjacent side wall 30) to be held arrested under the arresting lip 34a. Bottle carriers located in the other locating zones are similarly held in position and when the applicator head is fully loaded in which one bottle carrier is present in each locating zone, the applicator head is ready to execute an applicator stroke in relation to a crate of bottles therebelow. Thus, the applicator head is then moved downwards so that the bottle necks of bottles 'B' are received in the bottle neck receiving apertures of the carriers and the caps of the bottles pass into base plate apertures 'A'. During this action and with reference to carrier 'C' in locating zone Z , portions of each bottle neck pass along clearance recesses 36, 38 and 42,44 and the loading action of the bottles into the carrier displaces the carriers longitudinally of the applicator head into a more upright position thereby releasing the carrier from the arrestor lip. The side walls of the carrier are then disposed in a substantially vertical position. Thereafter, the applicator head is raised again for

reloading, leaving each of the carriers secured to the tops of a group of bottles 'B'.

CLAIMS

1. An applicator device (10) for applying at least one article carrier (c) to a group of articles such as bottles (B) which device comprises a plate (12) formed to provide a locating zone (Z) for each article carrier, each locating zone being adapted to receive an erected article carrier having apetured top and bottom walls interconnected by spaced side walls to form a generally tubular structure, said plate having a plurality of spaced apertures (a) formed in each of said locating zones for registry with like spaced apertures (A) formed in the top and base walls of said carrier, characterised by arresting means (34a) carried by said plate in each of said locating zones for engagement with the bottom wall of said carrier adjacent one of the carrier side walls the arrangement being such that the carrier automatically is held within said locating zone when that carrier is loaded into said applicator device and thereafter automatically is released by movement of the carrier walls caused when said applicator is applied to said group of articles.

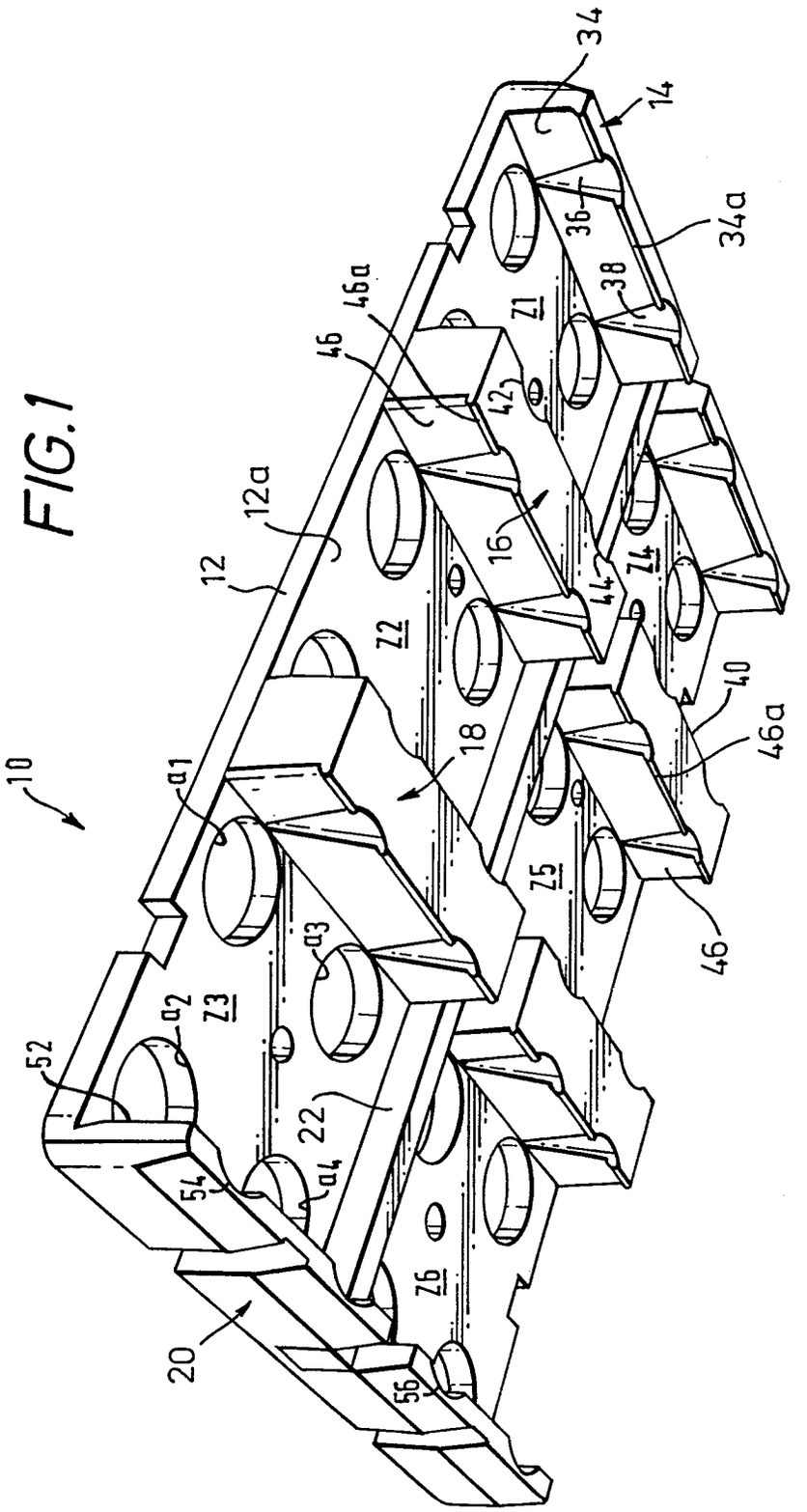
2. An applicator device according to claim 1, further characterised in that said plate includes a plurality of spaced transverse walls (14,16,18,20) depending from one surface (12a) of the plate and defining in part said locating zones and in that said arresting means comprises a lip provided on a free edge of some of said walls remote from said one surface and each lip interferring with the space defining a locating zone.

3. An applicator device according to claim 2, further characterised in that said transverse walls comprise a first end wall (14) at one end of the plate, a first intermediate wall (16) spaced from said end wall, a second intermediate wall (18) spaced from said first intermediate wall, and a second end wall (20) at the opposite end of the plate spaced from said second intermediate wall, each of said first end walls and said first and second intermediate walls having an arresting lip extending in a direction which faces towards said second end wall.

4. An applicator device according to claim 3, further characterised in that a longitudinal rib (22) extends from said one end of the plate to said opposite end of the plate and divides each of said transverse walls into two similar parts, each of said locating zones being provided by the space between an opposed pair of said transverse wall parts and a portion of said longitudinal rib.

5. An applicator device according to claim 4, further characterised in that the side surface of each transverse wall part providing a boundary of a locating zone is formed with a recess (36,38) aligned with each bottle neck receiving aperture (a) formed in the plate in that locating zone, said recess being divergent towards said one surface (12a) of the plate and providing clearance for receiving a portion of the periphery of a bottle neck when the bottle neck is inserted into an article carrier located in the locating zone.

FIG.1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Z5
Z6
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FIG.2

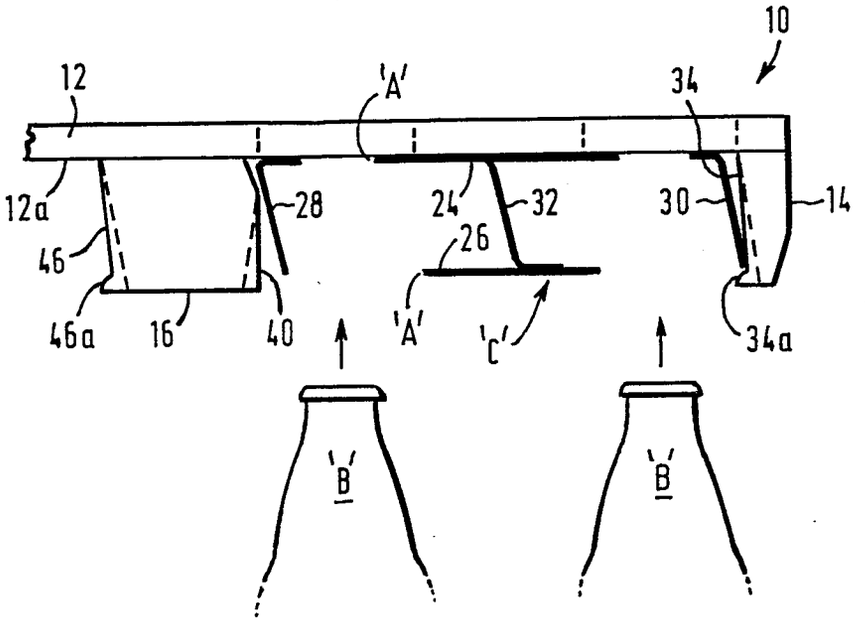
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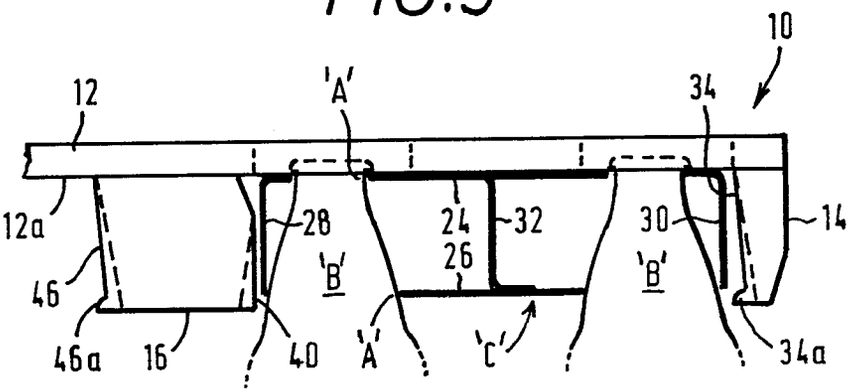
FIG.3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