

THREE-DIMENSIONAL INSERT CONSTRUCTION

Technical Field

The present invention generally relates to the packaging art, and more particularly, to a three-dimensional insert construction provided in a continuous web of inserts that may readily be handled by automated packaging equipment or the like.

Background Art

Packaging apparatus particularly adapted for handling inserts or coupons provided in the continuous perforated web are known in the art from, for example, U.S. Patent No. 5,079,901, assigned to the assignee of the present invention. That patent describes an apparatus and system that receives a continuous perforated web of coupons, provides a forwardmost coupon between pairs of feed rolls and burst rolls, and at a desired time, separates the forwardmost coupon from the continuous web by applying a bursting tension to a transverse perforation separating the forwardmost coupon from the next succeeding coupon. The separated coupon is then passed to a point of insertion at a desired time such as into a moving container based on signals provided by timing circuitry.

Other insertion handling apparatus are known such as that described in U.S. Patent No. 5,549,233. That patent describes an insert handling system that processes three-dimensional piece inserts with the use of laterally-spaced pairs of rolls. This configuration enables the three-dimensional aspect of the insert to be "passed through" the handling apparatus intermediate to the spaced sets of rolls. However, problems may occur with these equipment types where the projected piece

insert requires a flat area to be used to drive the piece either for bursting or for projection of an individual piece into a container or the like.

One attempt to overcome this problem has been to provide an insert that utilizes a piece of rigid cardstock or the like together with a three-dimensional
5 item. The additional rigidity provided by the cardstock adds desired stiffness to the insert or to use stiffer films. However, it does not overcome the problem of the packet or prize being laterally displaced to the peripheral sides of the cardstock during storage or handling and interfering with the rollers utilized in the burst operation. This is particularly problematic when a relatively high throughput of inserts is
10 required, requiring frequent stoppages of the processing line. Other approaches have included the use of glue applied to the cardstock to secure the object in a desired location on the cardstock and/or the object. While this approach solves the problem of lateral movement of the three-dimensional object, it dramatically increases the manufacturing cost of the insert. In addition, proper alignment of the object with the
15 glued portion of the cardstock is often problematic. The residual glue on the object may also be undesirable to the end user.

Yet another approach is referred to as "skin pack," in which plastic film is attached to a porous paper backer material through which a vacuum is drawn to conform the film to the item to be packaged. Although this method also solves the
20 problem of lateral movement, the porous paper backer is, inherently, not well suited for most permeability requirements of food-contact inserts.

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Disclosure of Invention

Accordingly, it is a general object of the invention to overcome the deficiencies of the prior art.

It is a further object of the present invention to provide a three-
5 dimensional insert which is easily fabricated at acceptable cost, while enabling ready handling in a coupon-handling system.

The present invention provides these and other additional objects with a three-dimensional insert comprising a piece of cardstock or paperboard (hereinafter referred to as cardstock) defined by first and second opposed ends and first and
10 second opposed sides. A thermosealable, olefin coating or film is applied to the top surface of the cardstock. An overwrap material is contacted with the coating and is bonded therewith to provide a seal between the overwrap material and the surface of the cardstock. This arrangement presents relatively consistent surfaces that are readily grasped by coupon processing equipment. In this way, a prize or other three-
15 dimensional object is retained in the overwrap without moving toward the peripheral sides utilized in handling the insert.

Brief Description of Drawings

Fig. 1 is an isometric view of first and second inserts provided in a continuous web of inserts according to the present invention.

20 Fig. 2 illustrates a piece of cardstock with an thermosealable coating on the cardstock.

Fig. 3 is a sectional view of the insert shown in Fig. 1 taken along the lines 3-3.

Modes for Carrying Out the Invention

Generally, the present invention relates to an insert used in a packaging application. The insert is particularly suited for handling by automated processing equipment such as that disclosed in U.S. Patent No. 5,549,233, the subject matter of which is incorporated herein by reference. Such equipment is adapted to engage the peripheral side edges of the insert while a three-dimensional object located in the central portion of the insert passes between the sets of rolls to enable handling of various types of three-dimensional objects. By way of example, the three-dimensional object may be a premium, prize or a package component that is intended to be inserted into a container such as a cereal box, bag or pouch. Alternatively, the insert may be a packet of flavoring or seasoning that is intended to be placed into a container, while remaining physically separated from the remaining contents of the container.

Fig. 1 is an isometric view of first and second inserts or coupons 10, 12 provided in a continuous web or stream of inserts. In the preferred embodiment, each of the inserts 10, 12 includes a three-dimensional piece or object 10p, 12p which will ultimately be placed within a container or the like. By way of example, the objects 10p, 12p may be prizes or the like provided in cereal boxes, bread wrappers or other suitable containers. Alternatively, the pieces 10p, 12p may be small packages which are utilized in food packaging or other similar applications.

The inserts 10, 12 are preferably provided in a continuous perforated web format and are separated from each other by a perforation 14 disposed to extend transversely to the web which connects inserts 10, 12 together. The remaining inserts in the web are similarly connected to each other.

5 Fig. 2 illustrates a relatively flat piece 20 of cardstock, paperboard or other material having a suitable rigidity to withstand processing by automated handling equipment. In this way, the cardstock piece provides structural support for the insert. The cardstock piece is defined by a pair of opposed ends 20e, a pair of opposed sides 20s, and a top surface. Fig. 2 also shows the cardstock piece 20 having
10 a thermosealable coating 22 applied to the entire top surface of the cardstock. Preferably, the coating 22 is an olefin-based material or other material having suitable thermo-sealing characteristics.

 Alternatively, a pair of strips of coating or other adhesive (not shown) may be applied to the peripheral edges of the cardstock piece 20, preferably proximate
15 to the sides 20s. In this embodiment, the surface of card 20 may be coated with heat sealable olefin-based material strips that extend the lengthwise dimension of the piece 20 between ends 20e. It should also be understood that the coating may applied to the top surface of the cardstock piece in other forms, such as in the form of spaced lands or the like.

20 The cardstock piece 20 with thermo-sealable coating and object 10p are surrounded by a plastic overwrap material such as overwrap material 26. For example, the overwrap material may be utilized to circumscribe the object and cardstock 20 to provide a barrier with the outside such as an aseptically packaged

insert. Preferably, the overwrap material ends 26e are heat sealed together to provide a transverse band which is then perforated or otherwise weakened proximate to the ends 20e of the cardstock. The sides 26s of the overwrap material are also preferably heat sealed or otherwise bonded or affixed to the lateral sides of the top surface of the cardstock piece 20 to completely enclose the three-dimensional object. One alternative method for engaging the overwrap material with the lateral sides of the top surface of the cardstock 20 is with the use of rollers or the like which provides a suitable compressive forces to the overwrap material and coating to provide a seal therebetween. In any event, a seal is provided between the overwrap material and the thermo-sealable coating on the surface of the cardstock at locations proximate to the side edges of the cardstock piece. In the preferred embodiment, the overwrap material is fabricated of the same material as the coating, for example an olefin-based material. However, the overwrap may be fabricated of a different material so long as its bonding characteristics are such that it will be readily secured with the coating on the top surface of the cardstock upon the application of heat and/or compressive forces applied to the lateral edges of the cardstock piece.

Accordingly, the three-dimensional object such as a promotional piece or packet is prevented from being laterally moved or dislodged toward the peripheral side edges of the insert and is kept away from the handling equipment. In addition, this arrangement presents relatively flat, uniform side surfaces which are the portions of the insert to be handled by the processing equipment.

As described in U.S. Patent No. 5,549,233, the web of inserts is presented to handling apparatus which engages the sides of the insert. In this regard,

spaced pairs of feed rolls engage the side edges of the forwardmost insert in the web and pass the coupon downstream to a pre-dispense location, preferably such that the forwardmost coupon is engaged by spaced pairs of burst rolls while the perforation separating the forwardmost coupon is disposed between the pairs of feed rolls and the

5 burst rolls. At the desired time, the burst rolls are rotated at relative angular speed greater than that of the feed rolls to apply a bursting tension to the perforation between the forwardmost coupon and the next succeeding coupon to disengage the forwardmost coupon from the remainder of the web and to position the coupon into a container or the like. In this way, three-dimensional inserts of the type described

10 above may be readily placed into containers.

Accordingly, a three-dimensional insert meeting the aforestated objectives has been described. The insert provides improved structural integrity as well as improved handleability. While the invention has been described in terms of the best mode currently contemplated, those skilled in the art will appreciate that

15 various modifications may be made without departing from the spirit and scope of the invention, as defined by the appended claims.

Claims



1. An insert adapted for use in conjunction with packaging apparatus comprising:

5 a three-dimensional object;

a piece of cardstock including a top surface defined by first and second ends and first and second side edges;

a thermo-sealable coating applied to at least a portion of the top surface of the piece of cardstock; and

10 an overwrap material circumscribing the three-dimensional object and the cardstock, the overwrap material being in sealing relation with the coating proximate to the first and second side edges to prevent lateral movement of the three-dimensional object toward the side edges of the cardstock.

15 2. The insert as in claim 1 wherein the coating extends the lengthwise dimension of the cardstock.

3. The insert as in claim 1 or 2 wherein the overwrap material is heat-applied to the coating.

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4. The insert as in claim 1, 2 or 3 wherein the overwrap material is heat-sealed proximate the ends of the cardstock to provide a relatively flat transverse band surface.

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5. The insert as in claim 4 wherein the relatively flat transverse band surface interconnects the insert with a second insert provided in a continuous web, the transverse band including a perforation formed therein.

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6. The insert as in claim 1, 2, 3, 4 or 5 wherein the coating comprises an olefin-based thermo-sealable material.

7. The insert of claims 1, 2, 3, 4, 5 or 6 wherein the coating is applied
10 only to the periphery of the cardstock.

8. The insert of claim 7 wherein the coating is applied only proximate the side edges.

15 9. The insert of claims 1, 2, 3, 4, 5 or 6 wherein the coating is applied to substantially all of the top surface.

10 10. A continuous web of a plurality of three-dimensional inserts adapted for handling by automated packaging apparatus, each insert in the web comprising:
20 a three-dimensional object;

a piece of cardstock including a top surface, first and second ends, and first and second side edges;

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a coating applied to at least a portion of the top surface of the cardstock; and
an overwrap material in surrounding relation to the three-dimensional object
and to the cardstock, the overwrap material being in heat-sealing engagement with the
coating proximate to the first and second side edges to present opposed, relatively flat
5 side surfaces engageable with the packaging apparatus.

11. The continuous web as in claim 10 wherein the coating comprises a
thermo-sealable olefin-based material.

10 12. The continuous web as in claim 11 wherein the overwrap material is
heat-sealed proximate to the ends of the cardstock to provide a relatively flat
transverse band connecting one insert in the web with a succeeding insert in the web.

13. The continuous web as in claim 12 wherein the transverse band has a
15 weakened portion formed therein.

14. The continuous web as in claim 13 wherein the weakened portion is a
perforation.

20 15. The continuous web of claims 10, 11, 12, 13 or 14 wherein the coating
is applied only to the periphery of the cardstock.



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16. The continuous web of claim 15 wherein the coating is applied only proximate the side edges.

17. The continuous web of claims 10, 11, 12, 13 or 14 wherein the coating
5 is applied to substantially all of the top surface.

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