Title: DECORATIVE ARTICLES WITH DISSIMILAR NESTABLE PARTS

Abstract: Molded or thermoformed polymeric articles are disclosed that comprise at least two parts (12) and (14), each having a surface side and a cavity side (29), which can be joined around their respective peripheries (28) and (30) to form the exterior shell of a three dimensional figure or object (10) with a substantially enclosed interior cavity. The two parts can have dissimilar surface features, but are cooperatively sized and have an overall configuration that renders them nestable only when disjoined and one part is rotated 180 degree around each of two perpendicular axes and inserted into the open cavity side of the other. The polymeric articles are preferably translucent and, if desired, a light support frame can also be provided that is capable of supporting a conventional decorative light string (52) in a predetermined array inside the cavity to light the interior of assembled figure or object. 
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DECORATIVE ARTICLES WITH DISSIMILAR NESTABLE PARTS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to molded or thermoformed polymeric articles, and more particularly, to polymeric articles that are decorative figures or objects having opposed, cooperatively sized parts with dissimilar appearance features that are nestable when separated and one half is rotated 180° around each of two mutually perpendicular axes. Support frames for decorative light strings are also disclosed for optional use in illuminating the figures or objects.

2. Description of Related Art

Decorative yard figures made of blow-molded plastic are well known and are particularly popular for use in seasonal decorating. These figures can be made, for example and without limitation, in the shape of Santa’s, snowmen, candles, toy soldiers, jack-o-lanterns, animals, and the like. The blow-molded figures are typically made of translucent plastic and are lighted by the insertion of a single light bulb through an aperture in the base or rear of the figure.

While they are relatively easy and economical to manufacture, conventional blow-molded, decorative figures and objects frequently have a high volume to weight ratio. This is particularly true where the articles are large figures or objects intended for use in outdoor or commercial seasonal decorating. Because of their bulkiness, even if relatively lightweight, such
sale, and store when not in use. Because they are often lighted internally with a single bulb inserted through an aperture in the base or in the rear wall, such blow molded articles also have a less attractive appearance than would be the case if the internal light source could be more evenly distributed.
SUMMARY OF THE INVENTION

Molded or thermoformed polymeric articles are disclosed herein that comprise at least two parts, each having a surface side and a cavity side, which can be joined around their respective peripheries to form the exterior shell of a three dimensional figure or object with a substantially enclosed interior cavity. The two parts can have dissimilar surface features, but are similarly sized and have an overall configuration that renders them nestable only when disjoined and one part is rotated 180° around each of two perpendicular axes and inserted into the open cavity of the other. The polymeric articles are preferably translucent and, if desired, a light support frame can also be provided that is capable of supporting a conventional decorative light string in a predetermined array inside the cavity to light the interior of assembled figure or object.
BRIEF DESCRIPTION OF THE DRAWINGS

The apparatus of the invention is further described and explained in relation to the following figures of the drawings wherein:

FIG. 1 is a side elevation view of a preferred article of the invention, assembled;

FIG. 2 is a front elevation view of the article of FIG. 1;

FIG. 3 is a rear elevation view of the article of FIGS. 1 and 2;

FIG. 4 is a side elevation view of the article of FIG. 1, disjoined;

FIG. 5 is a side elevation view of the left-hand portion of the article of FIG. 4, rotated 180° around each of its vertical and horizontal axes;

FIG. 6 is a side elevation view showing the left-hand portion of the article of FIG. 5 nested inside the right-hand portion of FIG. 5;

FIG. 7 is a simplified rear elevation view of the right-hand portion of FIG. 4, depicting a light frame and decorative light string installed inside the article;

FIG. 8 is a cross-sectional detail view taken along line 8—8 of FIG. 7, illustrating an attachment device useful for attaching a frame member of the light support structure of FIG. 7 to a wall of the article, with the peripheral edge of the opposing article shown in phantom outline;

FIG. 9 is a simplified plan view of the structure shown in FIG. 8, with the peripheral edge of the opposing article shown in phantom outline; and

FIG. 10 is an enlarged detail view taken along line 10—10 of FIG. 7.

Like reference numerals are used to indicate like parts in all figures of the drawings.
DESCRIPTION OF THE PREFERRED EMBODIMENTS

The polymeric articles disclosed herein are preferably decorative figures or other objects that are blow molded, rotationally molded or thermoformed from a polymeric sheet, although the invention is equally applicable to polymeric articles comprising injection molded parts. Because such figures and objects, particularly where intended for outside or commercial decorative use, are often larger than the mold platens of most conventional injection molding machines, it is believed that blow molding, rotational molding and thermoforming methods and equipment can be preferable for use in producing such larger articles. Where the polymeric articles of the invention are blow molded or rotationally molded as a single part, the part is desirably cut in two following molding, with the edges formed by the cut becoming the peripheral edges of the first and second parts of the invention, as described below. While it will be appreciated upon reading this disclosure that many different polymeric resins can be used in making the articles of the invention, polymers containing predominantly polyethylene or polypropylene are preferred.

Referring to FIGS. 1-4, articles 10 of the invention preferably comprise first and second parts 14, 12 which, as depicted, are the front and rear sides, respectively, of an artistic representation of Santa Claus with a sack of toys slung over his shoulder. First and second parts 14, 12 are preferably comparably sized, so that peripheral edges 30, 28 as seen in FIG. 4, can be cooperatively aligned and joined together to form article 10, which becomes a polymeric shell substantially enclosing an interior cavity 29. Referring to FIGS. 1-3, one characteristic of the subject invention is that first and second parts 14, 12 of article 10 can have different appearance features. For example, surface features 22 of first part 14 are different from surface features 20 of second part 12. Referring specifically to FIGS. 1 and 4, another particularly distinguishing characteristic of the subject invention, discussed in greater detail below in relation to FIGS. 5 and 6, is that the
general configuration of first and second parts 14, 12 of article 10 is such that outwardly projecting portions of one part are either disposed at the end opposite where outwardly projecting portions of the other part are located, or are oppositely disposed at the middle of the article. Thus, as shown, for example, in FIGS. 2-4, Santa's outwardly projecting jacket trim 24 in first part 14 is disposed at the opposite end of article 10 from outwardly projecting doll 26 of second part 12.

Referring to the embodiment of article 10 shown in FIGS. 1 and 3, first and second parts 14, 12 are preferably made in such manner that peripheral edge 28 of second part 12 can be inserted beneath peripheral edge 30 to slidably and releasably engage the periphery of first part 14, thereby creating band 16 around article 10 where wall portions of both parts overlap to substantially enclose internal cavity 29. If, as shown here, the extent of overlap is sufficient to hold first and second parts 14, 12 together during display or use, no further attachment device is required. Alternatively, any other conventional or well known attachment device that is similarly effective for the intended use can likewise be employed to join cooperatively aligned peripheral edges 30, 28 of first and second parts 14, 12 together in releasable engagement. Releasable engagement of first and second parts 14, 12 is desired to facilitate disassembly of article 10 for storage or shipment following use. Referring to FIGS. 1-4, first and second parts 14, 12 of article 10 also preferably comprise base portions 18b, 18a, respectively, that are also preferably cooperatively aligned and can be provided with weights, stakes, tie-downs, or other conventional means for securing article 10 in a stationary position or other preferred orientation when on display.

FIGS. 5 and 6 depict the manner in which second part 12 of article 10 is repositioned following detachment and separation from first part 14 so that second part 12 can be nested inside first part 14 as shown in FIG. 6. Following separation of first and second parts 14, 12 as shown in FIG. 4, second part 12 is rotated 180° around vertical axis 32 and is then rotated 180° around horizontal axis 34 to the position shown in FIG. 5. In FIG. 5, for
example, base portion 18a is disposed at the opposite end of article 10 from base portion 18b. Nesting is then achieved by moving second part 12 forward into first part 14 as shown in FIG. 6. The articles of the present invention are nestable only if one of the parts is rotated around each of two mutually perpendicular axes, and most preferably, rotated about 180° around each of the axes. Although either part can be the one that is rotated relative to the other, only one of the parts is rotated to render the two parts nestable. As used herein, the term "nestable" means that substantially all of one part will fit within the cavity of the other. Actual contact between adjacent surfaces is not required over the entirety of the surfaces and will in fact not occur where the two parts have dissimilar appearance features. In order to facilitate nesting, the outwardly projecting portions of one part should project slightly less than the outwardly projecting portions of the other part after one of the parts has been rotated as described above.

Depending upon the type and number of attachment devices used to releasably join the principal parts of article 10 together, the peripheral edge of one part can in some circumstances be disposed slightly inwardly of the other. In other instances, the peripheral edges of the two nestable parts may be substantially coextensive and abutting around the entire periphery of article 10. The use of tabs, hinges, brackets or the like as attachment devices for the first and second parts may also interrupt the peripheral edges or create portions of the edges that not closely adjacent over relatively short distances. Where the peripheral edges of the two parts have substantially the same shape and dimensions when the parts are aligned as shown in FIG. 6, the peripheral edge of the inner nested part can in some cases extend slightly beyond the peripheral edge of the outer nested part within the scope of the invention.

According to another preferred embodiment of the invention, article 10 is optionally provided with a light support member capable of supporting a plurality of lights to distribute light more evenly throughout the article than is possible, for example, if a single light bulb is inserted between the two parts.
or through an aperture in one of the parts and into the internal cavity of the article. Referring to FIGS. 7-10, for example, light support member 36 preferably comprises a frame further comprising vertical frame member 40, transverse frame member 38 and a plurality of transverse light support members 50. For purposes of illustration, FIG. 7 shows light support member 36 installed inside first part 14 as previously described and releasably secured to peripheral edge 30. Transverse frame member 38 and transverse light support members 50 are shown in FIG. 7 as being unitarily made with vertical support member 40. It is understood, however, that each of those members can be separately made or made in sections to facilitate manufacture and assembly, and that joints or fasteners of conventional design can be utilized to interconnect the various support members and intersection points 76 in the configuration shown, or in any other similarly effective configuration. Such support members can be molded or extruded from a polymeric material such as high impact polystyrene, or another polymeric material, or made of metal, fiberglass, or the like. Light support member 36 preferably comprises attachment devices 42, 44 at each end of vertical frame member 40 that are useful for securing vertical frame member 40 to at least one part of article 10 as previously described. Transverse frame member 38, also preferably connected to at least one part of article 10 by attachment devices 46, 48, provides lateral support for light support member 36 and prevents vertical frame member 40 from rotating inside article 10 when fully assembled. Each transverse light support member 50 preferably has disposed at its distal end an attachment device such as light clip 62 or any other well known configuration that is satisfactory for use in supporting some portion of decorative light string 52, which comprises sockets 56, bulbs 58 and electrical conductors 60. As shown in FIG. 7, light bulbs 58, which can be C-7, C-9 or even mini-lights, are forwardly facing inside cavity 29, directly lighting the interior of first part 14. If desired, light support members 50 can be extruded channels in which mini-lights are supported by frictional engagement.
Although it will be appreciated upon reading this disclosure that many different types of attachment devices can be used to releasably secure light support member 36 inside article 10 of the invention, one type of attachment device that is satisfactory for this purpose is further described and explained in relation to FIGS. 8 and 9. Although only first part 14 is shown in FIG. 7, light support member 36 is desirably supported by portions of peripheral edges 30, 28 of both first and second parts 14, 12, respectively, of article 10. In FIGS. 8 and 9, wall section 70 of first part 14 is therefore shown in solid outline while wall section 72 of second part 12 is shown in phantom outline.

Attachment device 42, shown in FIG. 8 as being molded onto the end of polymeric vertical support member 40, comprises a pair of axially spaced-apart, radially extending flange members 64, 66 separated by space 68. Space 68 is desirably dimensioned so that the facing surfaces of flange members 64, 66 will frictionally engage wall sections 70, 72 of first and second parts 14, 12, respectively, when wall section 70 overlies wall section 72 after edge 28 is inserted under edge 30 as parts 14, 12 are releasably joined with light support member 36 disposed therebetween. Referring to FIG. 9, arcuate recess 74 in wall section 70 and slot 78 in wall section 72 are desirably provided to facilitate the insertion of edge 28 under edge 30 around post section 80 under flange member 66.

Referring again to FIG. 7, electrical power cord 82 of decorative light string 52 is desirably passed through base member 18b of first part 14 through aperture 54 that can take the form of a circular opening, a grommet, cooperating recesses in parts 14, 12 as for recess 74 and slot 78 in FIG. 9, or any other similarly effective means.

Referring again to FIG. 1, first and second parts 14, 12 preferably have a wall thickness that is consistent with the method of manufacture utilized to form the parts and are sufficiently durable to function in the intended application. Translucent walls will facilitate interior lighting of articles 10 of the invention, even if paint or other exterior coatings are applied to enhance the decorative effect. Although article 10 is disclosed herein with
the external appearance of Santa Claus, it will be apparent that other figures such as Mrs. Claus, snowmen, angels, bears, witches, jack-o-lanterns, ghosts, etc., and other decorative objects such as simulated candles and the like can also be made within the scope of the invention.

Other alterations and modifications of the invention will likewise become apparent to those of ordinary skill in the art upon reading the present disclosure, and it is intended that the scope of the invention disclosed herein be limited only by the broadest interpretation of the appended claims to which the inventors are legally entitled.
CLAIMS:

1. Polymeric articles comprising first and second parts, each part embodying an external surface side and an internal cavity side separated by a peripheral edge, each part having first and second perpendicular axes, and decorative appearance features, the first and second parts being cooperatively sized but having different decorative appearance features and, when disposed in a first preferred alignment to each other, being joinable along at least a portion of their respective peripheral edges to form an exterior shell of a three dimensional object having a substantially enclosed interior cavity, the external surface side of the first part being nestable into the internal cavity side of the second part when disposed in a second preferred alignment, the second preferred alignment requiring that the first part be rotated 180° around each of its first and second perpendicular axes.

2. The polymeric articles of claim 1 wherein the first and second parts are thermoformed from a polymeric sheet.

3. The polymeric articles of claim 1 wherein the first and second parts are compression molded from a polymeric sheet.

4. The polymeric articles of claim 1 wherein the first and second parts are blow molded as a unitary structure that is then cut to form the peripheral edges of the first and second parts.

5. The polymeric articles of claim 1 wherein the first and second parts are rotationally molded as a unitary structure that is then cut to form the peripheral edges of the first and second parts.
6. The polymeric articles of claim 1 wherein the first and second parts are injection molded.

7. The polymeric articles of claim 1 wherein at least one of the first and second parts is translucent.

8. The polymeric articles of claim 7 wherein the first and second parts are translucent.

9. The polymeric articles of claim 1 wherein the first and second parts comprise polyethylene.

10. The polymeric articles of claim 1 wherein the first and second parts comprise polypropylene.

11. The polymeric articles of claim 1 wherein the three dimensional object is a decorative figure.

12. The polymeric articles of claim 11 wherein the decorative figure has a likeness selected from the group consisting of people, fictional characters and animals.

13. The polymeric articles of claim 1 in combination with a light support member attachable to the object to light the interior cavity of the object, the light support member further comprising: a frame; at least one attachment device releasably attaching the frame to at least one of the first and second parts; and a plurality of attachment devices releasably attaching a decorative light string having a plurality of bulb and socket assemblies to the frame.
A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : A47G 58/04, 1/19; A01N 1/00
US CL. : 498/7, 12, 13, 14, 15; 368/306, 308; 446/78, 210;
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)
U.S. : 498/7, 12, 13, 14, 15; 368/306, 308; 446/78, 210;

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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[X] Further documents are listed in the continuation of Box C. □ See patent family annex.

Date of the actual completion of the international search
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Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 505-3230

Authorized officer
Abraham Bahta
Telephone No. (703) 505-4412

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<td>Y</td>
<td>US 3,983,658 A (DE SANZ) 05 October 1976, col. 2, lines 58-68</td>
<td>3,6-7,11-12</td>
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B. FIELDS SEARCHED
Electronic data bases consulted (Name of data base and where practicable terms used):

WEST:
search terms: nestable, santa claus, jack-o-lantern, angel, snowman, ghost, hollow, cavity, molded, polymer, translucent, light, bulb, illuminated, separable