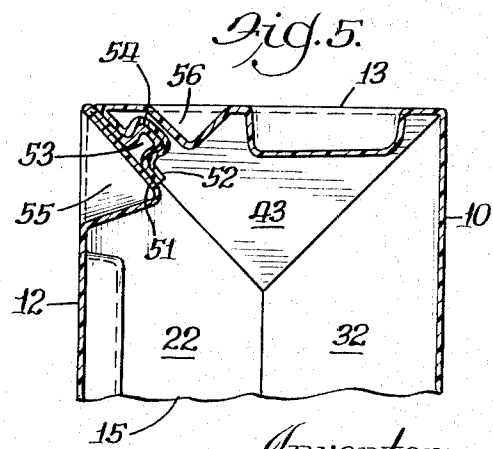
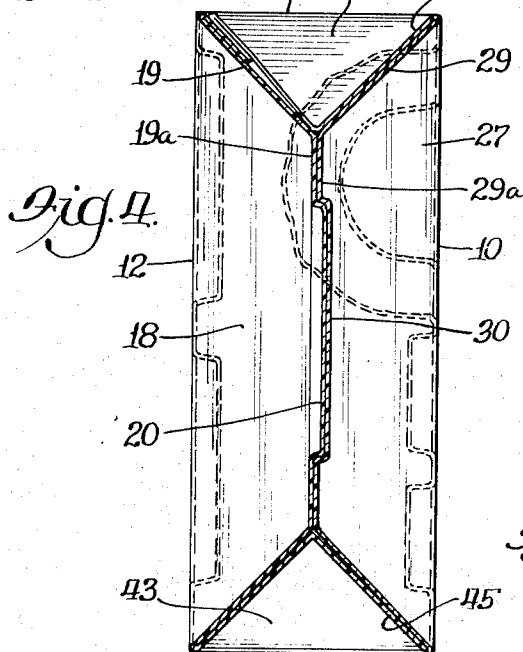
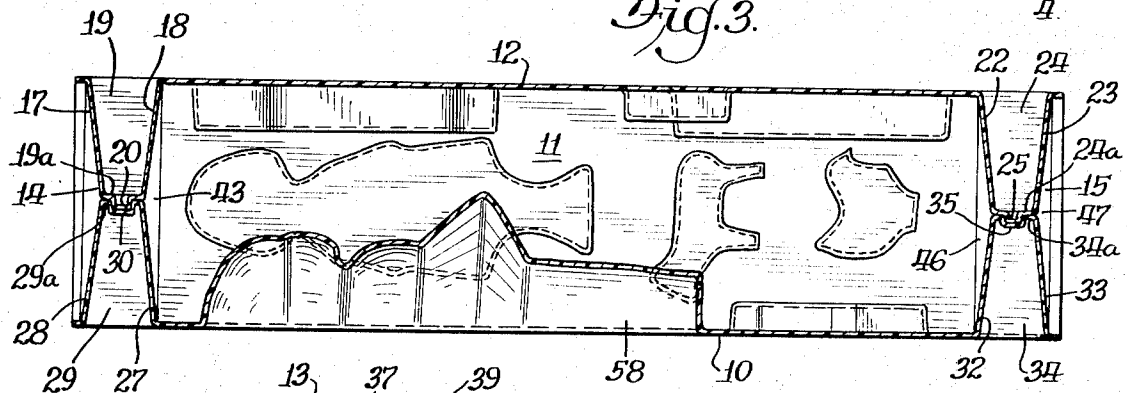
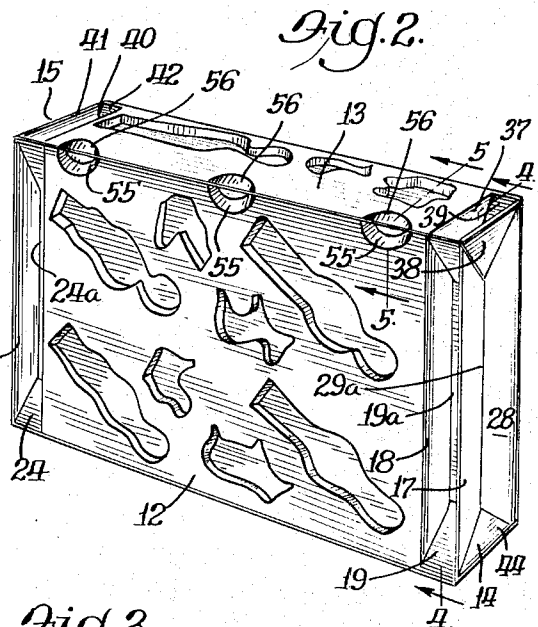
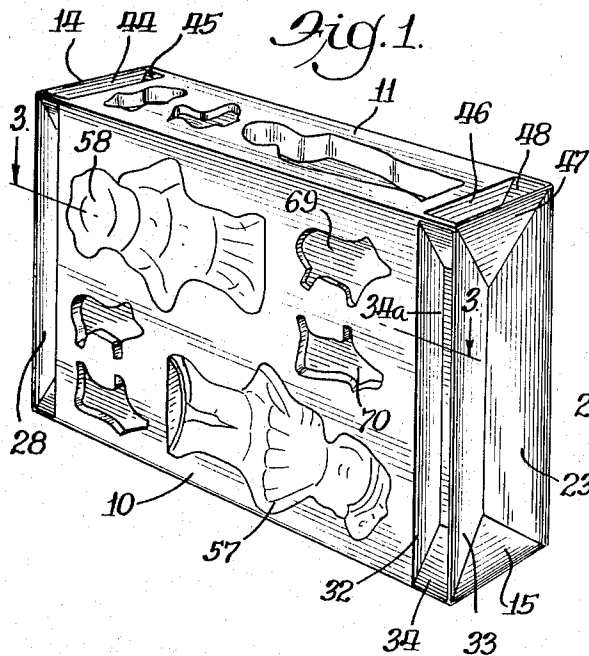
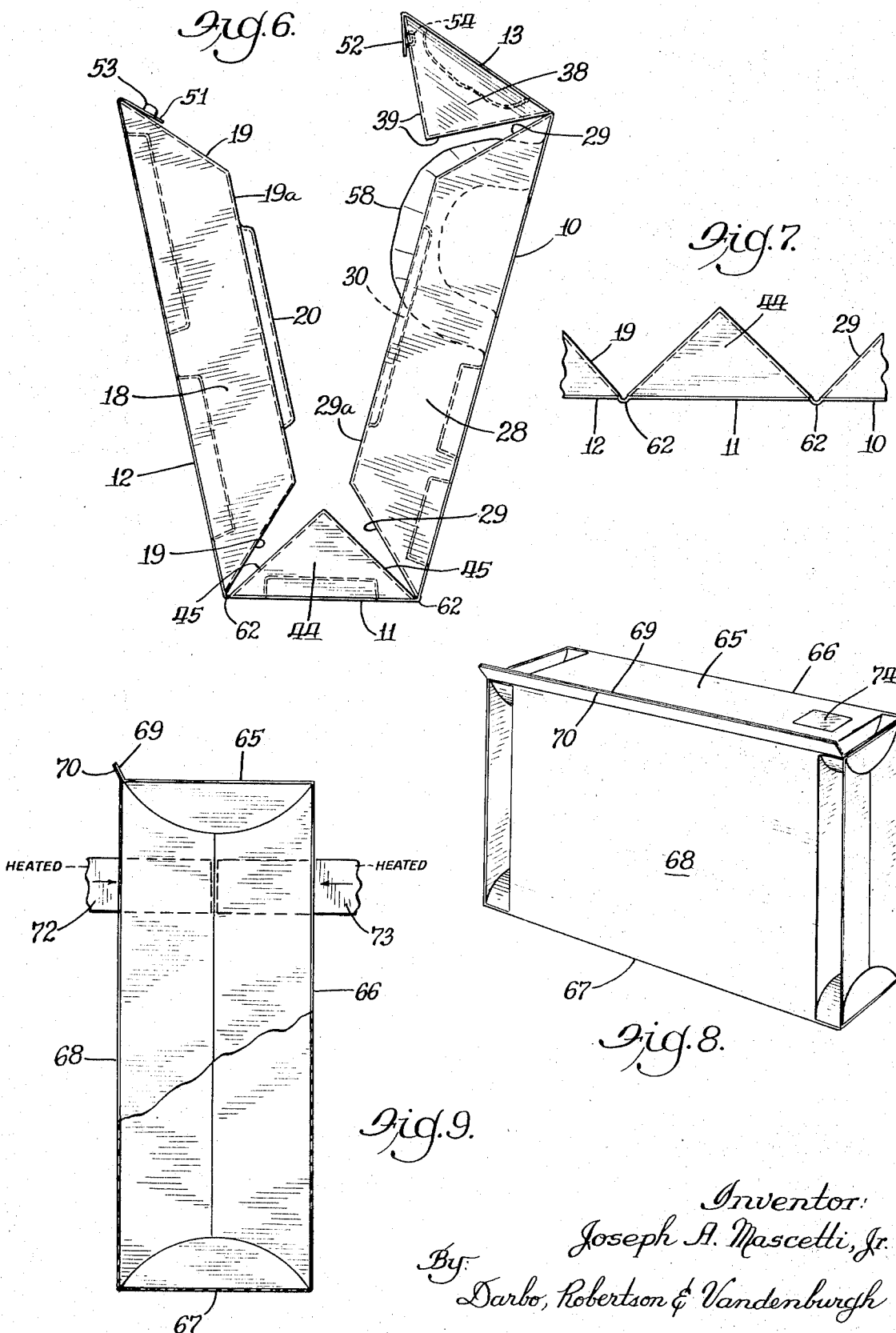




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SINGLE SHEET PLASTIC BOX

SUMMARY OF THE INVENTION

The present invention relates to the method of forming a box from a single sheet of relatively thin plastic and to a box configuration particularly adapted to be so made.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of one side and one end of an embodiment of the invention;

FIG. 2 is a perspective view of the other side and end of the invention;

FIG. 3 is a section taken at line 3—3 of FIG. 1;

FIG. 4 is a section taken at line 4—4 of FIG. 2;

FIG. 5 is a partial section as viewed at line 5—5 of FIG. 2;

FIG. 6 is a view of the molded blank for forming the box of FIG. 1, with the blank partially opened up or laid out;

FIG. 7 is a partial end view of the molded blank in the flat condition in which it was originally molded;

FIG. 8 is a perspective view of a second embodiment of the invention; and

FIG. 9 is an end view, partially broken away, of the embodiment of FIG. 8.

DESCRIPTION OF SPECIFIC EMBODIMENTS

The following disclosure is offered for public dissemination in return for the grant of a patent. Although it is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements. The claims at the end hereof are intended as the chief aid toward this purpose, as it is these that meet the requirement of pointing out the parts, improvements, or combinations in which the inventive concepts are found.

The box, illustrated in FIGS. 1-6, has four sides 10-13 and two ends 14, 15. At each end of each side is a configuration which defines a recess on the exterior face of the box and a corresponding protuberance at the interior face of the box. Thus, side 12 has a configuration at one end comprising truncated triangular walls 17 and 18 connected by a band 19. At the base of this protuberance the band 19 forms a relatively planar surface 19a. Within this planar surface is a protrusion 20. At the other end 15, the configuration of side 12 has truncated triangular walls 22 and 23 connected by a band 24. Likewise, this band defines a flat base 24a having a protrusion 25 therein.

At end 14 of side 10 is a configuration defined by truncated triangular walls 27, 28 and a connecting band 29. The base 29a is relatively flat with a socket 30 therein, which socket mates with protrusion 20. At the opposite end, side 10 has a configuration defined by walls 32 and 33 connected by band 34. Band 34 has a flat base 34a with a socket 35 therein. Socket 35 and protrusion 25 mate with each other.

The configurations at the ends of sides 11 and 13 are triangular. That is, side 13 has one end configuration comprising triangular walls 37 and 38 connected by band 39, and a configuration at the other end compris-

ing triangular walls 40 and 41 connected by band 42. Similarly, side 11 has triangular walls 43, 44 connected by a band 45 defining the configuration at one end and triangular walls 46, 47 connected by band 48 defining the configuration at the other.

Particularly from FIG. 3 it will be noted that the end configurations are molded inwardly from the actual ends of the sheets so that the sides extend beyond the configuration in the form of flanges. These flanges stiffen the outer walls (e.g., 23, 33, 38, etc.) defining the configuration.

As best seen in FIG. 6, sides 12 and 13 are the two distal sides formed from the sheet (as hereinafter described). Along the distal edges of these sides are flaps 51 and 52, respectively. Flap 51 has a plurality of buttons 53 molded to protrude therefrom. Flap 52 has a corresponding row of sockets 54 molded therein. These fit together to hold the box in its folded configuration, as best illustrated in FIG. 5. To facilitate engaging or snapping each button into its pocket, side 12 has a plurality of depressions 55 molded therein opposite the buttons, and side 13 has a plurality of molded depressions 56 opposite the sockets.

In the embodiment illustrated in FIGS. 1-6 there are a plurality of depressions which have a supplemental use of providing molds for children to create various figures. For example, there are depressions 57 and 58 which will serve as molds for the front and back sides, respectively, of a female figure. There are depressions 69 and 70 which will form two sides of an animal; etc. From the standpoint of the structure, depressions such as these, or even relatively shallow depressions on one face forming longitudinal ridges on the other, serve to give rigidity to the sides which would otherwise be rather flexible due to the thin plastic material employed. Depressions such as 57-60 can be molded in the various sides in a manner so as to fit about an object to be packaged in the box and provide cushioned support for that object and to protect it against damage that otherwise might be incurred during shipping.

The box blank (e.g., FIG. 6) is formed from a flat sheet of thermoplastic resin material (plastic). When it is formed all of the sides 10-13 lie in a common plane. The plastic sheet to form the blank is placed over a mold having the positive configuration that would be assumed if the blank of FIG. 6 were spread out flat, and through the use of heat and vacuum (a conventional technique) a box blank of the desired configuration is produced. It will be noted that all of the configurations at the ends of the sides, as well as the various depressions, have "draft," i.e., the sides are sloping outwardly. This greatly facilitates the extraction of the blank from the mold upon which it was made. As best seen in FIG. 7, grooves 62 are molded in the sheet between the adjacent sides and between the sides and the flaps. These serve as hinges to facilitate the folding of the molded sheet into the box configuration.

The embodiment illustrated in FIG. 8 comprises four sides 65-68 each having end configurations (pocket on the external face and protrusion on the internal face) which meet together to form closed box ends in the manner described in connection with the embodiments of FIGS. 1-6. One alternative illustrated in the embodiment of FIGS. 8, 9 is that the mating protrusions need not meet along straight lines but can meet along curved

lines. In other words, the configurations on the ends of sides 65 and 67 are convex and the configurations on the ends of sides 66 and 68 have concave parts to mate therewith.

Another alternative that is illustrated in FIGS. 8, 9 is that the flaps 69, 70 on the distal edges of sides 65 and 68, respectively, project outwardly in the finished box and are heat sealed together. As a matter of fact, the end configurations of the sides can be heat sealed together by inserting heated sealing irons in the pockets defined by the end configurations, i.e., sealing irons 72, 73, and applying heat and pressure either all along the juxtaposed bands or at spaced intervals therealong to secure these bands to each other. Such a sealed box can have an inserted dispensing flap 74 (of conventional construction) emplaced in one of the sides so that the contents of the box can be removed.

I claim:

1. A blank for forming a box having a plurality of connected sides and two ends, said blank having one face to be the exterior of the box and another face to be the interior of the box, each side adjacent one end of the box having a configuration defining a reentrant pocket on said one face and a corresponding protuberance on said other face, said configuration having two spaced walls, one being the external wall at the end and the other being the interior wall at the end, said configuration having a connecting band between said walls at the sides and base of the pocket, said configuration being of a form such that, when the sides are folded to assume the shape of the box, the band of each side mates with the bands of other sides and the configurations mate together to define a closed box end, whereby said blank may be molded from a sheet of relatively thin plastic and yet provide relatively secure end which does not require any special assembly after the blank is molded, said blank having two distal portions defining sides and each of those distal portions have a distal edge, said blank including means adjacent distal edge for connecting said distal portions together along said distal edges when said blank is folded to form the shape of the box, said means including a flap extending from each distal edge, one flap having a button and the other flap having a mating socket, said button and socket each being an integral part of the respective flap and molded from the material of the sheet, said flaps being folded inwardly as said blank is folded to form the box whereby they assume a particular position inwardly at the corner of the box, said distal sides having inwardly projecting pockets at said position to facilitate applying pressure to the button and socket to snap them together.

2. A blank as set forth in claim 1, wherein along said other face and between the proximal edges of adjacent

sides is a groove extending the length of said other face of said adjacent sides to form a hinge to facilitate the folding of the blank into the box.

3. A blank for forming a box having a plurality of connected sides and two ends, said blank having one face to be the exterior of the box and another face to be the interior of the box, each side adjacent one end of the box having a configuration defining a reentrant pocket on said one face and a corresponding protuberance on said other face, said configuration having two spaced walls, one being the external wall at the end and the other being the interior wall at the end, said configuration having a connecting band between said walls at the sides and base of the pocket, said configuration being of a form such that, when the sides are folded to assume the shape of the box, the band of each side mates with the bands of other sides and the configurations mate together to define a closed box end, whereby said blank may be molded from a sheet of relatively thin plastic and yet provide relatively secure end which does not require any special assembly after the blank is molded, along said other face and between the proximal edges of adjacent sides being a groove extending the length of said other face of said adjacent sides to form a hinge to facilitate the folding of the blank into the box.

4. A blank as set forth in claim 3, wherein said faces are generally planar between said configurations at least one side has a plurality of depressions on a first face and corresponding protuberances on the second face and positioned between said configurations to add rigidity to said side.

5. A blank for forming a box having a plurality of connected sides and two ends, said blank having one face to be the exterior of the box and another face to be the interior of the box, each side adjacent one end of the box having a configuration defining a reentrant pocket on said one face and a corresponding protuberance on said other face, said configuration having two spaced walls, one being the external wall at the end and the other being the interior wall at the end, said configuration having a connecting band between said walls at the sides and base of the pocket, said configuration being of a form such that, when the sides are folded to assume the shape of the box, the band of each side mates with the bands of other sides and the configurations mate together to define a closed box end, whereby said blank may be molded from a sheet of relatively thin plastic and yet provide relatively secure end which does not require any special assembly after the blank is molded, said band on one side being convex, and the adjacent portion of the band on an adjacent side being concave.

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