SNAP-OPEN NOVELTY DEVICE

Howard E. Lohnes, Kansas City, Mo., assignor to Hallmark Cards, Incorporated, Kansas City, Mo., a corporation of Missouri

Filed Nov. 17, 1960, Ser. No. 69,907
1 Claim. (Cl. 161—14)

This invention relates to snap-open devices and the like, and, particularly, to three-dimensional decorative novelties which may be stored in a flattened condition prior to use.

The principal objects of the present invention are to provide a self-supporting three-dimensional novelty expandable from a substantially flattened two-dimensional condition and usable for greeting cards, centerpieces, Christmas tree decorations and the like; to provide such devices having at least three upper and at least three lower walls mutually connected to form a three-dimensional structure and having a fold line extending over at least one upper and lower wall through an angle of greater than 180 degrees whereby the structure becomes self-supporting; to provide such devices wherein folding inwardly across the fold line collapses the device to a substantially flattened condition; to provide such devices which may be formed from a single sheet of foldable material; and to provide such novelties which may be produced in several different external shapes to produce interesting variations for the choice of consumers.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a perspective view with parts broken away of a simulated house formed in accordance with this invention in a partially collapsed condition.

FIG. 2 is a perspective view of the house of FIG. 1 in a partially collapsed condition.

FIG. 3 is a plan sectional view of the partially collapsed house of FIG. 2.

FIG. 4 is a plan sectional view similar to FIG. 3 but showing the house in completely collapsed condition for storage.

FIG. 5 is a perspective view with parts broken away of an additional embodiment of this invention in the form of a pair of elongated triangular pyramids joined at the base, one of the pyramids being a frustum.

FIG. 6 is a perspective view showing the position of the hands when collapsing the embodiment of FIG. 5.

FIG. 7 is a perspective view showing the embodiment of FIG. 5 in a partially collapsed condition.

FIG. 8 is a perspective view of a further embodiment of this invention in the form of a triangular pyramid having three walls at the base terminate in a collar-like structure.

FIG. 9 is a perspective view of the embodiment of FIG. 8 from a different vantage point showing details of the collar-like structure.

Referring to the drawings in more detail:

The reference numeral 1 refers generally to a three-dimensional novelty in the form of a house expandable from a substantially flattened condition. The house 1 is formed of sheet material such as thin cardboard which is foldable a plurality of times along fold lines without separation. The structure of the house 1 comprises first walls 2, 3, 4 and 5 positioned with respect to each other to form mutually and outwardly sloping structure which is substantially rectangular pyramidal in shape but having a horizontal peak line 6 to simulate a house roof. The walls 2 to 5 inclusive each have a pair of side edges 7 and a lower edge 8. The walls 2 to 5 inclusive are mutually connected along the mutual side edges 7 by virtue of being folded out of a single sheet of material such as at 9 or by means of a tab 10 which is secured to the connecting wall by means of a suitable adhesive. The walls 2 and 4 are partially extended upwardly in the vicinity of the peak line 6 to form a vertical slat 11 which simulates a chimney and adds to the effect of a house-like structure. The lower edges 8 of the walls 2 to 5 inclusive terminate in a single horizontal plane and describe a closed rectangular figure.

A second group of walls 12, 13, 14 and 15 are mutually secured along side edges 16 thereof by virtue of being folded from a single piece of sheet material or by means of tabs 17 which are retained on respective walls by means of a suitable adhesive. The walls 12 to 15 inclusive are each comprised of a vertically disposed portion 18 and an upwardly and outwardly sloping portion 19 which abuts to the upper section of the vertically disposed portion 18 by means of a fold line 20. The portions 19 terminate in upper edges 21 which are respectively secured to the lower edges 8 of the walls 2 to 5 inclusive.

The portions 19 extend away from the walls 2 to 5 respectively so as to produce an angle of greater than 180 degrees between the respective outwardly facing surfaces thereof.

It is noted that the general configuration of the structure of FIG. 1, when progressing from any point on the peak line 6 downwardly, is first a downwardly and outwardly sloping followed by an inward slope followed by a vertical extension.

Fold lines 22 and 23 are contained in a plane which substantially longitudinally and equilaterally bisects the house structure along the connected walls 3 and 13 and the connected walls 5 and 15. The fold lines 22 and 23 intersect the lower edges 8 of the walls 3 and 13 and extend vertically entirely across the respective walls 5 and 15.

As indicated in FIGS. 2, 3 and 4, when the structure is collapsed inwardly along the fold lines 22 and 23, the novelty takes the form of a flattened substantially two-dimensional structure suitable for mailing in an envelope or storage and consuming very little space. The forming of the completed three-dimensional structure from a flattened condition offers delight and amusement for the recipient while resulting in an appropriate centerpiece decoration, Christmas tree decoration or other similar ornamentation.

FIGS. 5, 6 and 7 illustrate an additional embodiment of this invention, being of triangular rather than quadrilateral shape. The embodiment of FIGS. 5, 6 and 7 comprises a first triangular pyramidal form 24 secured to the frustum 25 of another triangular pyramidal form, both forms being joined at their base lines 26. A vertically extending fold line 27 in a plane substantially equilaterally bisects the entire structure longitudinally thereof. The upper wall 28 and lower wall 29 which contain the fold line 27 slope away from each other so as to produce an angle of greater than 180 degrees between the outwardly facing surfaces thereof. As indicated in FIGS. 6 and 7, the inward folding of the structure across the fold line 27 collapses the novelty to a substantially flattened condition.

FIGS. 8 and 9 illustrate a further embodiment of this invention wherein a triangular pyramidal form 30 is connected at its base lines 31 to sharply inwardly extending walls 32 which terminate in a collar 33. A fold line 34 is contained in a plane which substantially equilaterally bisects the novelty longitudinally and the walls 35 and 32 which contain the fold line 34 are positioned with respect to each other so that the outwardly facing sur-
faces thereof produce an angle of greater than 180 degrees. As with the above-disclosed embodiments, folding of the novelty of FIGS. 8 and 9 across the fold line 34 collapses same to a substantially flattened condition.

It is to be understood that while I have illustrated and described certain forms of my invention, it is not to be limited to the specific forms or arrangements of parts herein described and shown except insofar as such limitations are included in the claim.

What I claim and desire to secure by Letters Patent is:

A self-supporting three-dimensional novelty expandable from a collapsed condition to a self-supporting condition comprising: a sheet material structure having three first walls, said first walls each having side edges and a lower edge, said first walls each being mutually connected to other first walls along said first wall side edges, said first walls being positioned to slope downwardly and outwardly of said structure, said lower edges of said first walls terminating in a plane and describing a closed geometrical plane figure, three second walls each having side edges and a joining edge, said second walls being mutually connected to other second walls along at least a portion of each of said second wall side edges, said second walls each being connected along said joining edge to a corresponding lower edge of one of said first walls, said second walls extending away from respective first walls connected thereto so as to produce an angle of greater than 180 degrees between the outwardly facing surfaces thereof, a fold line extending downwardly on one of said second walls and connected first wall from upper to lower edges thereof, said fold line being perpendicular to said joining edge and substantially vertically bisecting said one second wall and connected first wall whereby folding inwardly of said second wall and connected first wall along said fold line collapses said novelty from a self-supporting condition.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 136,085 Herz ---------------- Aug. 3, 1943
102,457 Craw ----------------- Aug. 1, 1893
929,980 Popper ---------------- Aug. 3, 1909
1,841,041 Lowenstein ------------ Jan. 12, 1932
1,861,206 Burgess ------------- May 31, 1932
2,083,912 Johnz ----------------- June 15, 1937
2,633,657 Warren -------------- Apr. 7, 1953
2,833,074 Jonnes --------------- May 6, 1958
2,896,788 Hoffberger ----------- July 28, 1959