July 31, 1934. O. J. TOWELL 1,968,660

COLLAPSIBLE DISPLAY CONTAINER

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FIG. 1.

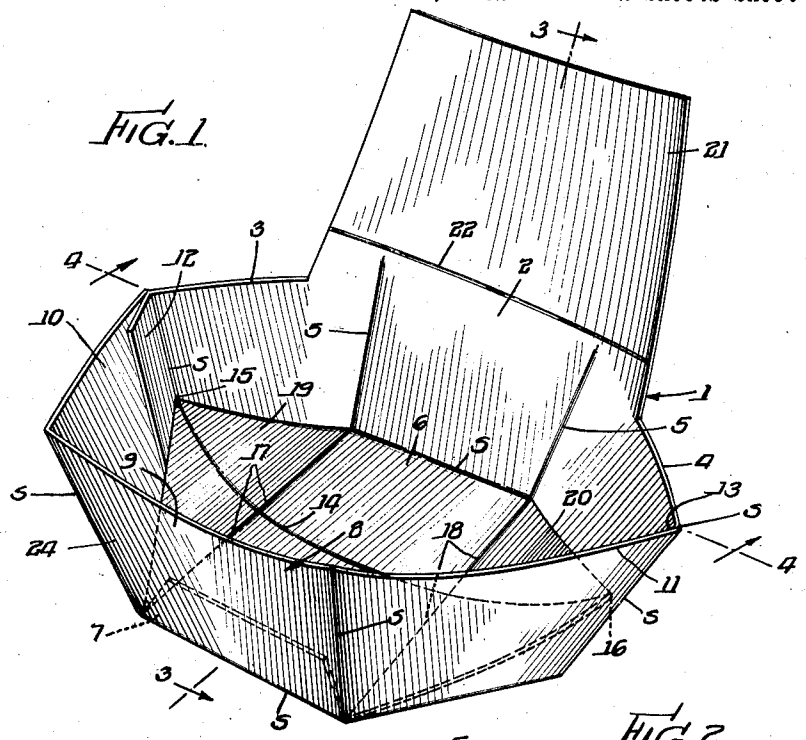

FIG. 2.

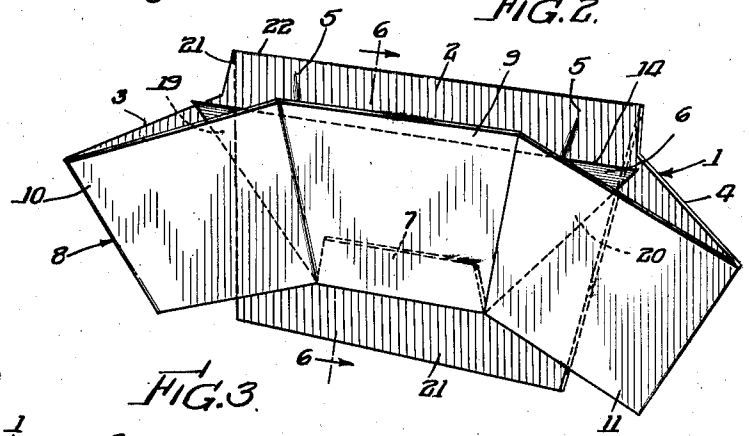

FIG. 3.

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FIG. 4.

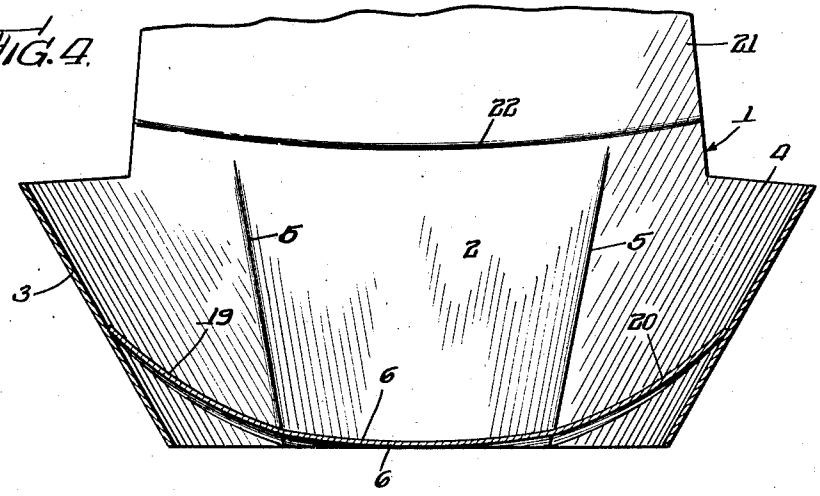


FIG. 5.

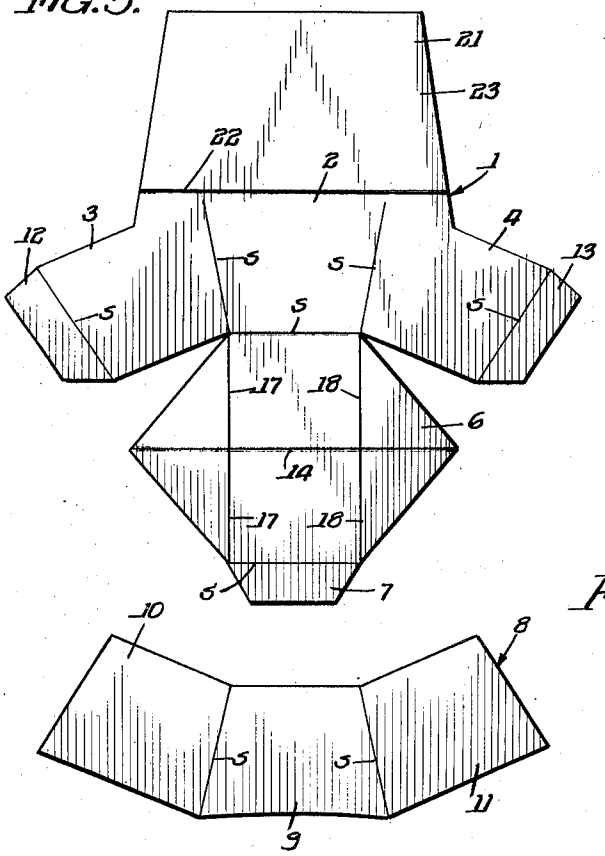


FIG. 6.

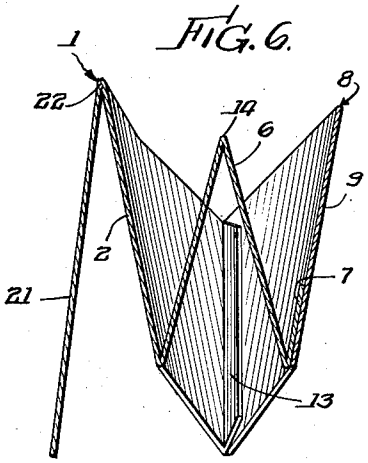
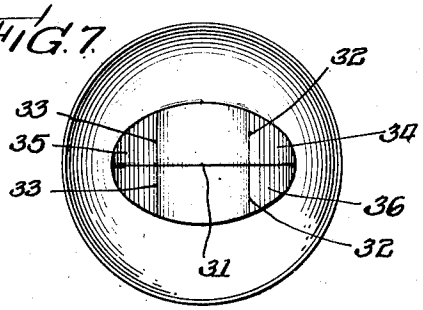


FIG. 7.



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UNITED STATES PATENT OFFICE

1,968,660

COLLAPSIBLE DISPLAY CONTAINER

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Application January 18, 1932, Serial No. 587,172

14 Claims. (Cl. 229—41)

This invention relates to collapsible display containers and its primary object is to provide a new and improved container which is collapsible and which is self-sustaining, maintaining its proper supporting position when expanded.

Another object of the invention is to provide a folding display container in which certain parts are integrally connected with other parts to reduce the cost of manufacture and which has the parts so positioned that printing can be done on the various parts without the necessity of adding a special coated paper or board and thereby reduce the cost of the container.

Another object is to provide a new and improved bottom for containers so that when the bottom is pushed down in expanded position, it will hold the container in proper expanded position.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawings illustrate a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail perspective view of the container in its normal expanded display position.

Fig. 2 is a detail view of the container in partly collapsed position.

Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a detail view of the container in blank form comprising the two parts.

Fig. 6 is a detail sectional view on the line 6—6 of Fig. 2.

Fig. 7 is a top plan view of a modified form of the container being circular in shape.

Referring to the drawings, 1 designates a rear blank comprising a back 2 and sides 3 and 4 which are hingedly connected to the back 2 in circuit formation by means of the scores 5. A bottom 6 is integrally connected to the lower end of the back 2 and has an integral flap 7 for attachment by gluing or otherwise to the front blank 8. The front blank 8 comprises a front portion 9 and side portions 10 and 11 to which side portions 12 and 13 on the side members 3 and 4 respectively are fastened such as by gluing. The particular container thus far described is hexagonal constituting the parts 2, 3, 4, 9, 10 and 11. In addition to the score lines 5 previously mentioned, other score lines are provided as indicated at *s* so as to render the container collapsible. The entire body of the container therefore has all its members hinged in circuit permitting instant and ready collapsibility of the container. The bottom 6 is made crown-shaped, that is, the bottom has a longitudinal score line 14 extending across thereof from the point marked 15 to the point marked 16. The dimension across this score line 14 is greater than the dimension or diameter of the body of the container at the point where the bottom is attached to the side walls of the container.

The container, in its folded position, will be as shown in Figs. 2 and 6 with the line or ridge 14 of the bottom extending up into the body of the container. However, when pressure is applied to this ridge, the bottom will be pushed beyond the normal center line permitting the score lines 17, 17 and 18, 18 to give slightly so that the ends 19 and 20 of the bottom will extend upwardly in the manner shown in Fig. 4. Thus, when the bottom is pushed all the way down, the bottom will be relatively flush with the lower edges of the container except the sides 19 and 20 will stick up into the body of the container. To hold the container in expanded position, the bottom is pushed down forcibly causing the surplus material of the multi-sided or polygonal bottom to be jammed down between the sides thus causing the bottom to bow out as shown in Figs. 1 and 4. The bowing of the bottom of the container bends the hinge line 14 beyond its center line so that it no longer acts as a hinge to allow casual collapse of the box but instead acts as a lock to maintain the container in extended position. The score lines or creases 17 and 18 permit the portions 19 and 20 to bend more or less sharply and tension the sides of the container making the container capable of supporting relatively heavy loads and at the same time prevent the container from collapsing. By pushing the bottom downwardly, the sides of the bottom and particularly the portions 19 and 20 provide an urging action on the sides of the container to maintain it in expanded position. However, the container may be readily returned to collapsed position by merely pushing upwardly on the bottom, particularly along the score line 14. This pressure returns the bottom beyond its normal center line allowing the score line 14 to again act as a hinge and permitting the container to be again collapsed or folded. A display card 21 is integrally connected to the rear blank 1, being a part of the back 2 and a small part of the sides 3 and 4. The material is creased or scored along the line 22, Fig. 1, to permit the display card to be bent downwardly as shown in Fig. 6. When

the container is collapsed, the display portion 21 will not bend over but will be supported in a vertical position as shown in Figs. 1, 3, and 4 due to the tension exerted against the sides of the container when the bottom is forced all the way down. As previously mentioned, the bowing of the bottom creates a thrust action and tends to bow the sides of the container so that the display part 21 will not be free to collapse until the bottom is pushed upwardly allowing the score line 14 to act as a hinge. When the container is in erected self-supporting position, the display card portion of the container will assume the relative contour of the container along its upper edge and therefore prevent the card from bending along the normal hinge or score line 22.

The device so far described relates to a hexagonal container comprising a plurality of side members hinged together in circuit, but it is to be understood that the container may be made in various shapes just so the bottom member is elongated, having a diameter or distance greater than the distance at the lower edge of the container where the flaps are fastened to the sides.

In Fig. 7 there is shown a circular container which operates exactly the same as the hexagonal container just described. In this embodiment the bottom 30 is made oval having a score or hinge line 31, the length of the hinge line 31 being greater than the diameter of the container at the point where the lower edges of the bottom are connected to the sides of the container. The bottom 30 is provided wih score lines 32, 32 and 33, 33 to provide the parts 34 and 35. These latter parts bend up and act the same as the parts 19 and 20. Thus, when the oval bottom is pressed downwardly beyond its normal horizontal plane, the bottom will create a pressure against the sides of the container and tend to hold it in expanded position.

From the foregoing, it will be evident that in the above described form, the container, when expanded, assumes the form of a right truncated, hexagonal pyramid, and that it maintains itself firmly in this condition by reason of the fact that the bottom is depressed beyond center, thus making it concave when viewed from above, that is, concave in the sense that the median line 14 is bowed downwardly, the ends curving upward and exerting outward pressure against the sides of the container.

The invention provides a relatively strong and durable container when it is arranged in expanded position and is capable of being instantly collapsed for shipping purposes.

Another feature of the invention is the manner in which the blank 1 is made relative to the blank 8. If the sides were all made in one piece, with a separate bottom later attached, it would be necessary to coat both the inside and outside of the container in order that printing matter could appear on the front sides. Therefore in making the container, the front side 23 of the blank 1, Fig. 5, and the front side 24 of the blank 8, Fig. 1, are provided with the coating so that the container may have printed matter appearing on the front 23 of the blank 1 which includes the top of the bottom 6, and also upon the front 24 of the blank 8. The arrangement herein shown, therefore, permits the container to be printed on the surfaces which are always in view as it is not necessary to have any printing on the rear or inside face of the blank 8 or on the rear or back face of the blank 1.

The container is self-sustaining and supporting when it is expanded and is capable of carrying articles of considerable weight. The device can be readily and economically manufactured, is attractive in appearance, and provides a unique and ornamental container for supporting and displaying articles such as candy and other confectionery.

Changes may be made in the form, construction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A collapsible display container comprising a plurality of connected hinge sides, a bottom hingedly and integrally connected with one side and hingedly fastened to the other side, said bottom having a central score line acting as a hinge, the length of the bottom along the hinge line being greater than the diameter of the container at the plane where the bottom is fastened to the sides, said bottom having transverse score lines intermediate its sides whereby the bottom is free to be pressed downwardly into bowed form to maintain the container in expanded position.

2. A collapsible display container comprising a plurality of sides hingedly connected in circuit, a downwardly bowed bottom hingedly connected to opposite sides of the container, said bottom being provided with longitudinal and transverse score lines, the area of the bottom being greater than the cross sectional area of the container at the plane where the bottom is connected to the container, said bottom being bowed downwardly and concaved below a median line parallel to the hinge lines where the bottom is connected to the sides of the container, the surplus portions of the bottom being jammed against opposite sides of the container and tensioning the bottom to hold the container in expanded position.

3. A collapsible display container having upwardly and outwardly inclined side walls, a concave bottom hingedly connected to the side walls, said bottom having a central score line and transverse score lines acting as hinges for the bottom, the diameter of the bottom being greater than the cross sectional dimension of the container where the bottom is connected to the side walls of the container, the bottom being bowed downwardly with the surplus portions of the bottom engaging the sides of the container to maintain the container in expanded position.

4. A collapsible display container comprising a supporting wall and a bottom hingedly connected on opposite sides to the supporting wall, said bottom having longitudinal and transverse score lines which act as hinges, said bottom adapted to be pressed downwardly into bowed formation to maintain the container in extended position, said bottom when pressed downwardly extending below a median line parallel to the hinge lines where the bottom is connected to the sides of the container.

5. A collapsible display container of frustoconical form comprising outwardly extending side walls, a bottom member hingedly connected at opposite sides to the side walls and having a hinge line parallel to said opposite sides, transverse hinge lines across the bottom near the side edges of the container, the length of the first hinge line being greater than the diameter of the cone

in the plane where the bottom is connected to said walls.

6. A collapsible container comprising side walls and a bottom hingedly connected to the container, the bottom being bowed in concave form when the container is in extended position, said bottom being larger in diameter than the cross sectional dimension of the container where the bottom connects with the container, said bottom having longitudinal and transverse score lines and said side walls having hinge lines to permit the container to be collapsed, said bottom being foldable against itself and extending between the side walls when the container is in collapsed position.

7. A box comprising a pair of members each including a plurality of hingedly connected sides, said members adapted to be fastened together forming a box body having hingedly connected sides whereby the body may be collapsed, one of said members having a bottom hingedly formed therewith and adapted to be fastened to the other of said members, and a hinged integral extension on one of said members and extending above the upper edges of the body, said bottom being greater in area than the area of the box body at the lower end thereof, said bottom being provided with longitudinal and transverse score lines to permit the bottom to be arranged in bowed position when the box is in extended position and to permit the bottom to be folded when the box is in collapsed position.

8. A collapsible display container including a plurality of hingedly connected sides, and a bottom structure having a hinged connection with at least one of said sides, said bottom structure having at least one transverse dimension which is greater than the complementary dimension between opposite sides whereby to render marginal portions of said bottom structure cooperative in maintaining the sides in a state of expansion, said bottom structure being scored in a direction transverse to the line of said greater dimension whereby to facilitate the downward flexing of the bottom structure.

9. A collapsible display container including a plurality of hingedly connected sides, a bottom structure having a hinged connection with at least one of said sides and cooperatively arranged for maintaining said sides in a state of expansion when said bottom structure is positioned within the lower portion of the container, and a member extending upwardly from at least one of said sides at the rear of the container for display purposes, the rear portion of the container being scored transversely a distance greater than the width of one of the rear sides whereby to permit the intermediate section of said display member to be deflected rearwardly when the sides of the container are expanded, thus serving to lend rigidity to said member when it occupies its upright display position.

10. A collapsible display container including a plurality of hingedly connected sides, a bottom structure having a hinged connection with at least one of said sides and cooperatively arranged for maintaining said sides in a state of expansion when said bottom structure is positioned within the lower portion of the container, and a member extending upwardly from at least one of said sides at the rear of the container for display purposes, the rear portion of the container being scored transversely a distance greater than the width of one of the rear sides, whereby to permit the intermediate section of said display member to be deflected rearwardly when the sides of the container are expanded, the rear side of the container being scored intermediate the opposite extremities of and at an angle with respect to the first mentioned scoring.

11. A collapsible display container including a plurality of hingedly connected sides, a bottom structure having a hinged connection with at least one of said sides and having at least one transverse dimension which is greater than the complementary dimension between opposite sides whereby to enable marginal portions of said bottom structure to cooperate in maintaining the sides of the container in a state of expansion, said bottom structure including an intermediate section normally positioned at the bottom of the container and portions disposed on opposite sides of said intermediate section normally extending upwardly therefrom when said section occupies its normal position within the expanded container, said oppositely disposed portions marginally engaging the complementary inner surfaces of the sides to facilitate the functioning of the bottom structure in maintaining the expansion of the container sides.

12. A collapsible display container comprising a plurality of hingedly connected sides, a bottom structure hingedly and integrally connected with at least one of said sides, the opposite end of said bottom structure cooperating with a side oppositely disposed from said hinged connection for maintaining a connection between said parts, said bottom structure being provided with a hinge structure to permit said bottom structure to be folded between a front and back side of the container, said bottom structure being normally flexed downwardly when the container is in its expanded position to thereby maintain said sides in their normal upright positions.

13. A collapsible display container comprising a pair of members each including a plurality of hingedly connected sides, said members adapted to be fastened together to form a box-like body having hingedly connected sides whereby the body may be collapsed, one of said members having a bottom member hingedly formed therewith and cooperatively arranged to close the lower portion of the container, said bottom member being scored to facilitate the downward flexing thereof, and a hinged display extension on one of said members extending above the upper edges of the body.

14. A collapsible display container including a container wall structure, a bottom structure having a hinged connection with said wall structure and cooperatively arranged for maintaining said wall structure in a state of expansion when said bottom structure is positioned within the lower portion of the container, and a member extending upwardly from the rear portion of said wall structure for display purposes, the intermediate portion of said display member being deflected rearwardly with respect to the container when the container wall is maintained in a state of expansion through the agency of said bottom structure, said display section being scored transversely in a manner to permit the intermediate section thereof to be deflected rearwardly when the wall structure is maintained in a state of expansion by the engagement therewith of said bottom structure and also permitting said display section to be folded against the rear portion of the wall section when the container is collapsed.

OSCAR J. TOWELL.