May 27, 1941. E. M. BROGDEN 2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Original Filed Aug. 27, 1935 5 Sheets-Sheet 1

Fig. 1.

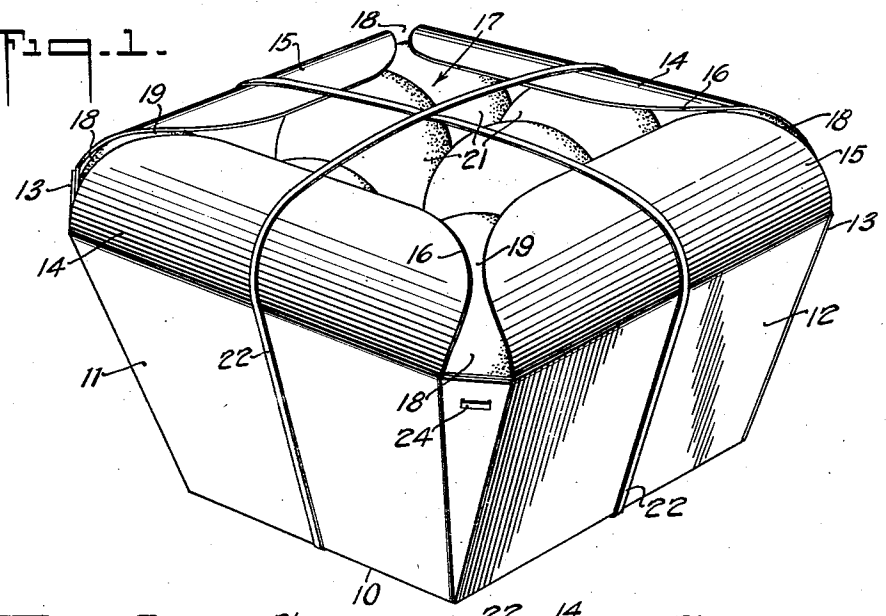


Fig. 2.

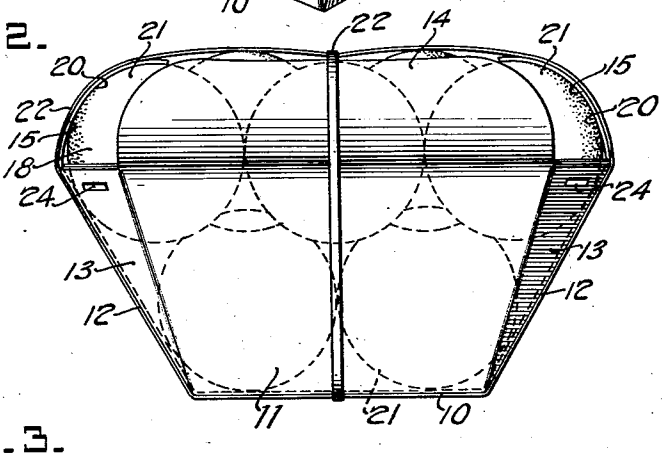
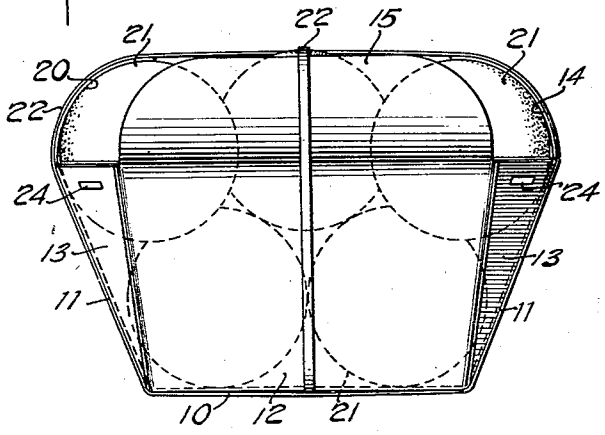


Fig. 3.



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May 27, 1941. E. M. BROGDEN 2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Original Filed Aug. 27, 1935 5 Sheets-Sheet 2

Fig. 4.

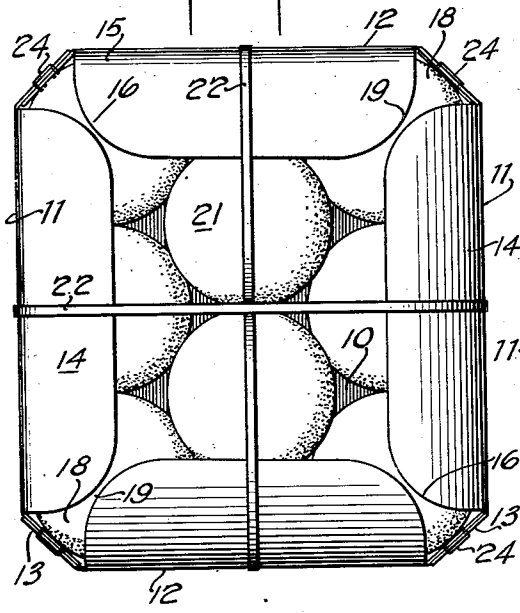


Fig. 5.

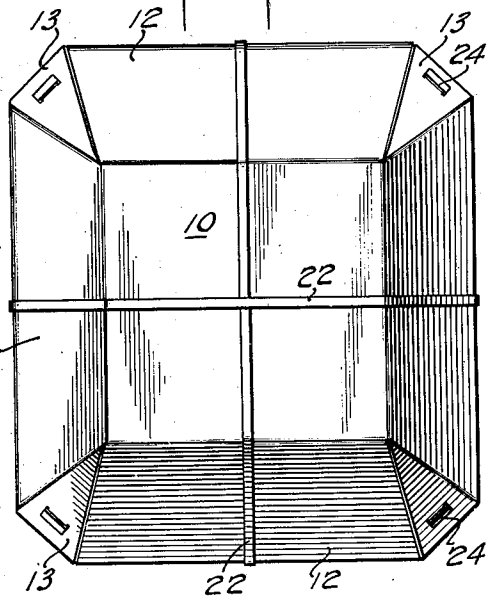
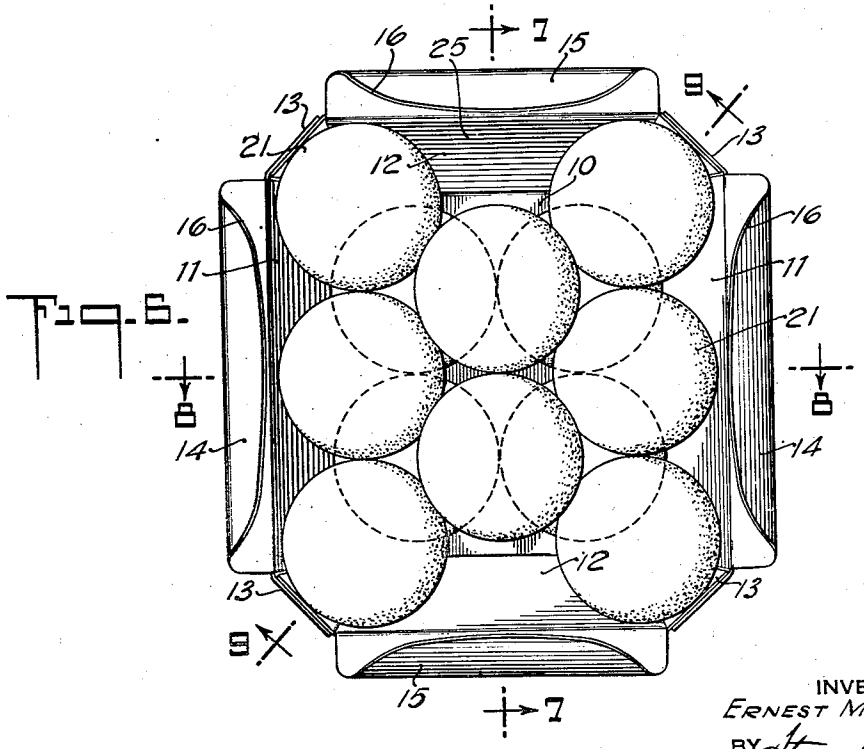


Fig. 6.



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May 27, 1941. E. M. BROGDEN 2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Original Filed Aug. 27, 1935 5 Sheets-Sheet 3

Fig. 7.

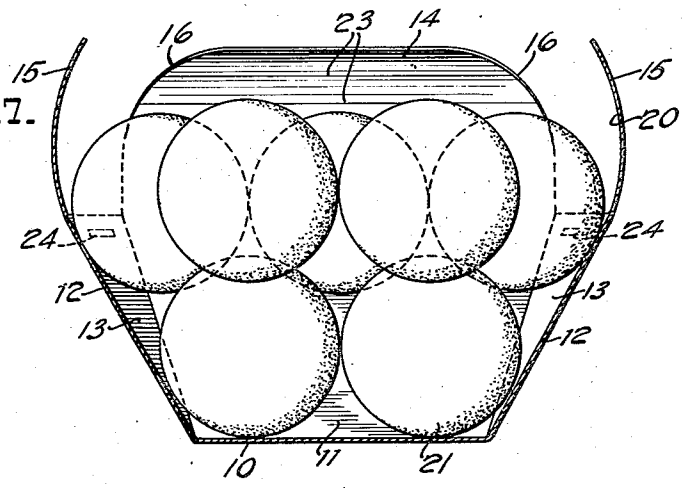


Fig. 8.

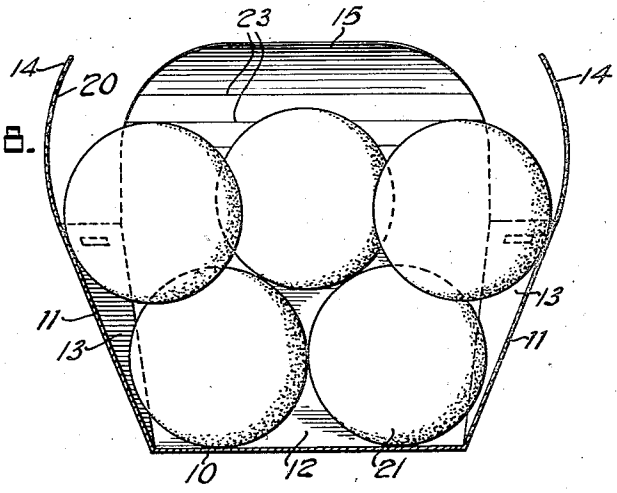
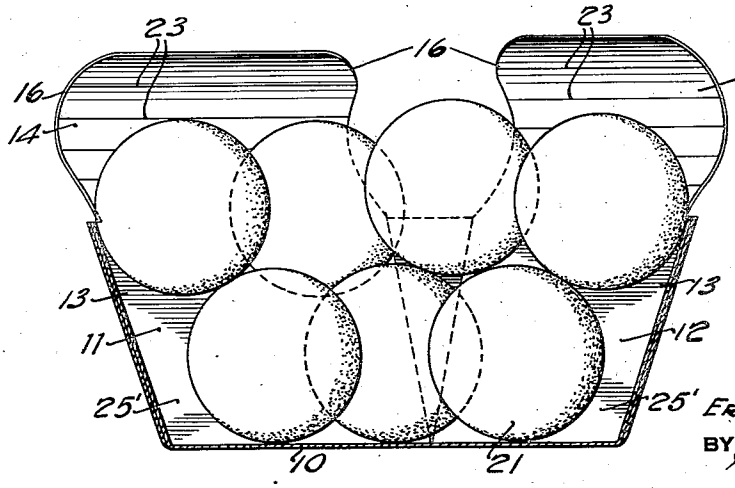


Fig. 9.



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May 27, 1941. E. M. BROGDEN 2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Original Filed Aug. 27, 1935 5 Sheets-Sheet 4

Fig. 10.

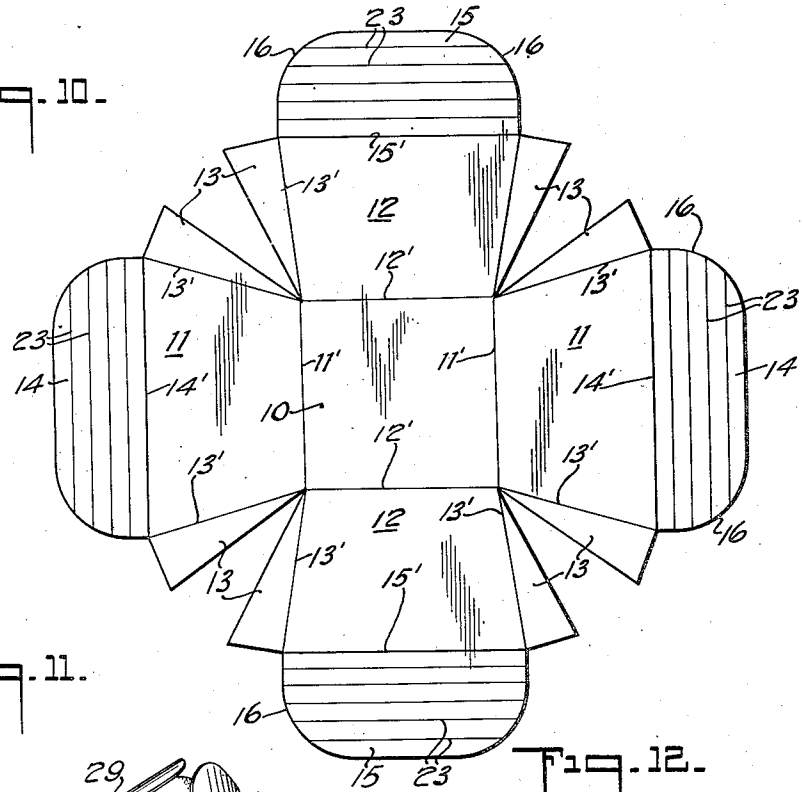


Fig. 11.

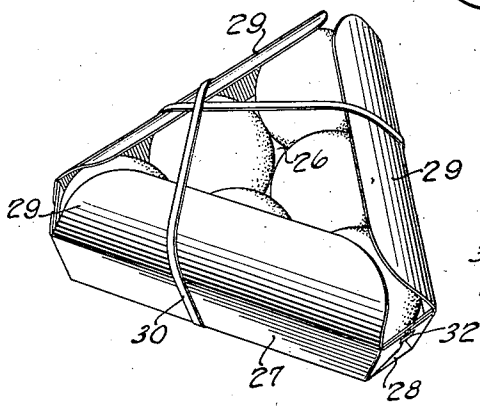
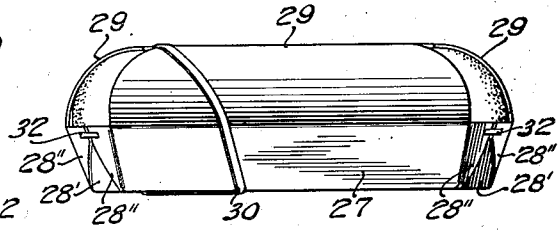


Fig. 12.



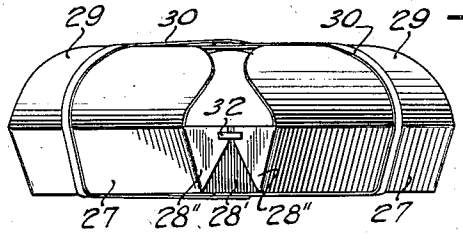


Fig. 13.

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May 27, 1941. E. M. BROGDEN 2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Original Filed Aug. 27, 1935 5 Sheets-Sheet 5

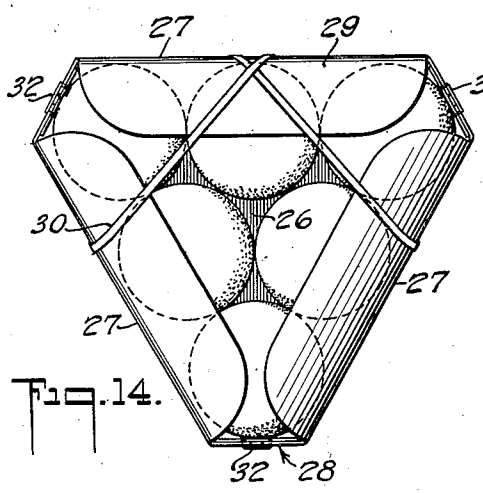


Fig. 14.

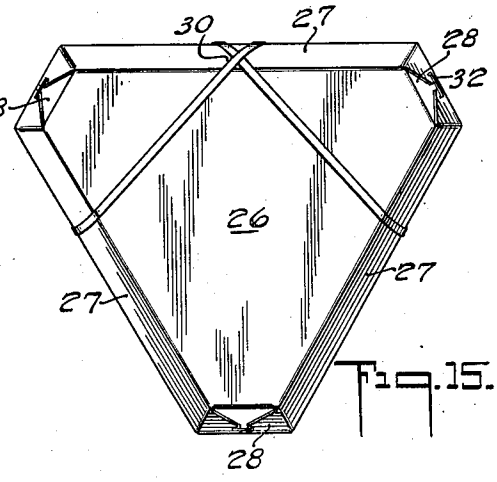
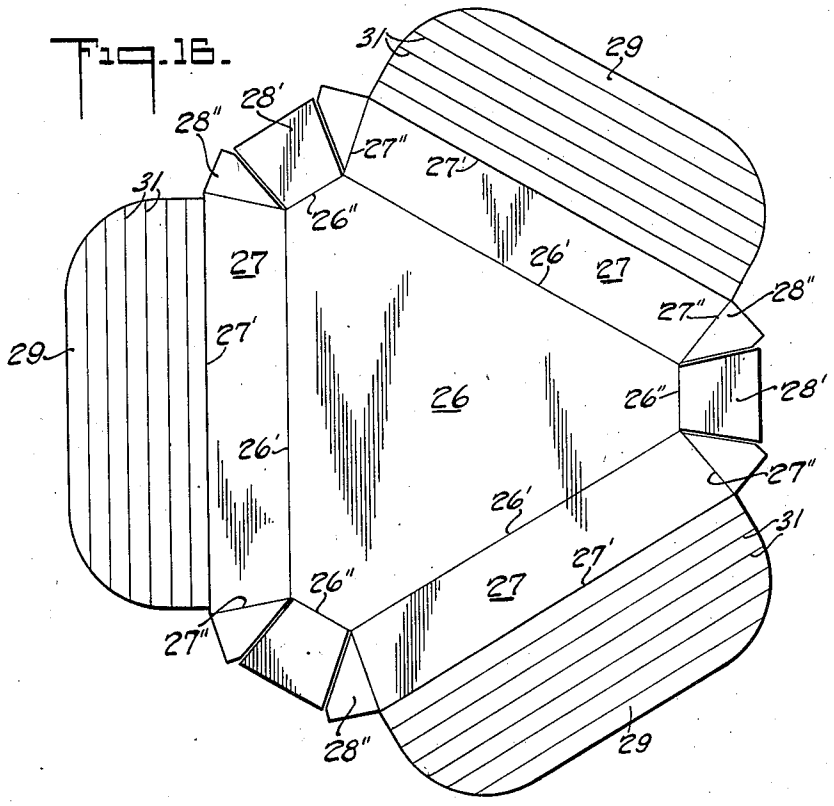


Fig. 15.

Fig. 16.



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Patented May 27, 1941

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UNITED STATES PATENT OFFICE

2,243,080

CONTAINER CONSTRUCTED OF BOXBOARD AND BLANKS THEREFOR

Ernest M. Bregden, Orlando, Fla., assignor to Bank of The Manhattan Company, trustee, New York, N. Y., a corporation of New York

Application August 27, 1935, Serial No. 38,110
Renewed October 27, 1937

14 Claims. (Cl. 229—33)

This invention relates to containers constructed of boxboard and blanks therefor. The invention relates more particularly to a packaging container constructed of fibrous paper-stock material in manufactured sheet form, such as cardboard, fiber-board, corrugated board or other suitable manufactured fibrous sheet material of generally related character, and possessing novel and desirable characteristics that render it peculiarly fitted to meet practical trade requirements not satisfactorily met heretofore where the container was formed of such material, and to a novel blank of such material offering particular advantages in the manufacture of the container. The term "boxboard" is herein used in the generic sense to include any such fibrous sheet material.

Still more particularly, the novel container of the invention is of the foregoing character as to construction material and of a type constituting a consumer-unit container for the packaging of articles of generally globular shape and substantial size, especially fresh fruits and vegetables, in a manner permitting the articles to be displayed to purchasers and inspected by them in the package. Most desirably, the container is also of a form and construction suited for use in shipping or transporting the articles in packaged form in the course of their distribution from the producer to the consumer, while affording them effective protection against mechanical injury.

The invention is useful in packaging a wide variety of articles in connection with their distribution and sale, but is especially useful when applied as a consumer-unit packaging container in connection with the distribution and sale of fresh fruits and vegetables that are more or less globular in form, and particularly such fruits and vegetables as are, in commercial practice, customarily sized or grouped into more or less standard sizes in making them ready for marketing to dealers and consumers and are usually offered for retail sale and sold to consumers in unit numbers, such as a dozen or any convenient multiple or fraction of such unit, with the component articles of any given unit or lot of approximately uniform size. The invention is also applicable, however, where such articles are sold in weight units instead of number units. Examples of fruit and vegetables in connection with whose distribution and sale the novel container of the invention offers particular advantages are citrus fruits, including oranges, grapefruit, tangerines and lemons; deciduous fruits such as apples, pears, peaches and plums; and vegetables such as tomatoes, onions and potatoes.

The invention is more particularly directed to the provision of a boxboard packaging container and means for its ready and cheap manufacture, which container will meet practical trade requirements in the special field of distributing and marketing such perishable food articles as mentioned above which have not been met satisfactorily heretofore by containers of that general type. The underlying principles of the invention will therefore be disclosed with particular reference to the application of the invention to this special field of use. As already noted, however, the invention is not limited to this particular field of use, and reference thereto in disclosing its principles is not to be construed as limiting the broad scope of the invention as defined in the appended claims.

Among the practical trade requirements of a consumer-unit packaging container for commercial distribution and marketing of fresh fruits and vegetables of the character referred to above, one of first importance is that the container be of a form and construction involving relatively low manufacturing cost and relatively low labor expense for packing the articles therein in order that the complete package may profitably be sold to a consumer at an attractively low price. Another important requirement is that the container shall have sufficient strength and stiffness to be self-sustaining and to prevent the package being broken open and its contents injured under ordinary handling conditions which, if the packaged articles are to be shipped or transported in the container a substantial distance, may often be somewhat severe. Also, the container should hold the articles snugly enough to prevent substantial relative movement thereof within the container such as would result in undue chafing or rubbing during transportation. Still further, it is desirable that the container be of such form and construction as to automatically accommodate itself to reasonable variations from the intended mean or average standard size and departure from normal globular form, of the articles composing the unit to be held therein, whether the articles happen to be somewhat oversize or undersize. This is particularly desirable where the container is to be used in a consumer-unit package of fresh fruit, such as oranges for example, in order that the container may remain snugly filled even where the oranges (e. g.) it contains may shrink to some extent after originally being placed therein,

due to the withering or wilting often undergone by fresh fruit in greater or less degree during the distributing and marketing period. It is also highly desirable that the consumer-unit container be such as to enable the dealer to pack the articles therein in a manner displaying them to advantage in the package and enabling the purchaser easily to inspect them therein as to their quality or grade and condition. It is further of considerable practical importance that the container be such as to form with the contained articles a consumer-unit package of attractive appearance as a whole; and, in non-delivery trade especially, that the package be of such shape and contour as to be easily handled and carried by the consumer-purchaser.

My invention comprises a novel boxboard container meeting the foregoing requirements, as well as possessing other important practical advantages, and a novel boxboard blank offering particular advantages for manufacture of the container therefrom. The use of any suitable fibrous sheet material coming under the term "boxboard" as hereinbefore defined substantially lowers the manufacturing costs for the container as well as presents other advantages, particularly where the containers are of relatively small sizes in which sizes my invention finds especially useful application, such containers, of course, being designed to package the articles in correspondingly small lots. While the sheet material mentioned has long been employed in the manufacture of containers of various types including packaging and display containers for such fruits and vegetables as are mentioned above, no container of the consumer-unit type and made of such material has been available in the art that would satisfactorily meet all the various practical requirements and possess the advantageous characteristics outlined above.

The provision of such a container involves the heretofore unsolved problem of giving the container a body construction, form and arrangement of its parts which will not only fit the container to meet the practical trade requirements outlined above but will also come within the manufacturing limitations imposed by the construction of the container from the mentioned sheet material.

As will more fully appear from the detailed description hereinafter given of exemplary embodiments thereof, the invention affords a practical and satisfactory solution of the foregoing problem, avoiding objections and supplying deficiencies characterizing prior practice pertaining to packaging containers constructed of boxboard or the like and providing a consumer-unit packaging container constructed of such material that not only meets the requirements and possesses the advantages mentioned above, but also enables other important advantages to be realized.

Generally described, the packaging container of the invention comprises a tray section constituting the lower part or body and cover flaps, both constructed of boxboard, with the cover flaps hinged to the upper edge or periphery of the tray section and of such configuration that when they are moved or folded over the tray section they only partly cover the same, leaving a central portion of the top open to expose the contents. In the best embodiments of the invention, the container is so constructed and proportioned that it will snugly hold a predetermined unit quantity, more particularly a unit number, of globular articles (e. g. oranges or peaches) of one or more standard sizes, usually only one size, in a predetermined arrangement presenting a major portion of the articles comprising the contained unit projecting above the upper edge of the tray, as an advantageous arrangement of the articles in the package for display and other purposes, and will maintain them in this arrangement by preventing substantial relative movement of the articles one to another. Also, in the preferred embodiment of the invention, the hinged cover flaps are of such dimensions and shape that they do not overlap when moved inwardly into their normal covering position and do not even contact with each other when the container is filled with its unit quota of globular articles of the normal mean standard size or sizes contemplated. Consequently in this preferred embodiment of the invention, the complete package is open not only centrally but at spaced peripheral localities as well; and since in the above-described arrangement of the articles in the container the major portion of them project above the upper edge of the tray section, the majority of the contained articles are prominently visible through the central and peripheral openings left uncovered by the cooperating cover flaps.

Most desirably, the novel container is structurally strong and self-sustaining, and boxboard of any of the hereinbefore-mentioned types and of different degrees of thickness and stiffness or rigidity and consequent resistance to deformation from the plane sheet form may be employed as the construction material, depending upon the structural strength and resistance to deformation desired in the container. In the best embodiments of the novel container, boxboard of such thickness and rigidity is employed and the container is so formed therefrom as to enable it to withstand the application of substantial external force without deformation, thus permitting, for example, piling the complete unit packages one upon another to a substantial height without endangering the integrity of the lower packages and damaging their contents.

Other and more detailed aspects of the invention relate to the form and arrangement of the wall parts of the tray section and the cover flaps of the container within the manufacturing limitations imposed by its construction from the mentioned sheet material to give the container the structural features fitting it to adequately meet the practical trade requirements outlined above, the form of blank from which the container may advantageously be made and the manner in which the blank is bent or folded in forming the container therefrom.

Certain concrete embodiments of my invention which have been found particularly suitable for use in connection with the distribution and sale of fresh fruits and vegetables of the kinds already mentioned will be referred to and described hereinafter, by way of illustrative examples, in further explaining the principles of the invention, but it is to be understood that these embodiments of the invention are not limited to this particular field of use.

In the accompanying drawings, which illustrate the above-mentioned embodiments of the invention,

Fig. 1 shows the perspective one form of the novel packaging container filled with fruit, such as oranges, to form a complete package.

Figs. 2 and 3 are side and end elevations, respectively, and Fig. 4 is a top plan view of the

filled container shown in Fig. 1, while Fig. 5 is a bottom plan view of the container;

Fig. 6 is a top plan view of the container with the cover flaps swung back out of covering or closing position, with the preferred arrangement of the globular articles therein shown more or less diagrammatically;

Figs. 7 and 8 are vertical sections on the lines 7—7 and 8—8, respectively, of Fig. 6, the arrangement of the contained articles being again shown more or less diagrammatically;

Fig. 9 is a vertical section through the container on the diagonal line 9—9 of Fig. 6;

Fig. 10 is a plan view of one form of the novel box-board blank, from which the container shown in Figs. 1 to 9 inclusive made be made, the scale of Fig. 10 being less than that of Figs. 1 to 9;

Fig. 11 is a perspective view of another form which the packaging container of the invention may take;

Figs. 12 and 13 are side elevation and end or corner view, respectively, and Figs. 14 and 15 are top plan and bottom view, respectively, of the container shown in Fig. 11; and

Fig. 16 is a plan view of another form of the novel boxboard blank, from which the container shown in Figs. 11 to 15 inclusive may be made, the scale of Fig. 16 being larger than that of Figs. 11 to 15.

Referring first to that form of the novel packaging container illustrated in Figs. 1 to 9 inclusive, it comprises a tray member which constitutes the body proper of the container and which is formed by a plane, rectangular bottom 10, and plane side walls 11 and 12, co-extensive peripherally with the bottom at their line of junction therewith, the opposite side walls 11 being slightly longer peripherally than the side walls 12. Most desirably, and as shown, the side walls 11 and 12 are inclined or flared outwardly toward the top, which inclination spaces them apart above the bottom at their opposed end edges in the region of the corners of the container body, with the spaces increasing in V-shape toward the top. These corner spaces are spanned and the side walls connected together by plane corner walls 13 of V-shape in plan, the corner walls being also outwardly inclined or flared toward the top. Two pairs of cover flaps 14 and 15 are hingedly united to the side walls 11 and 12, respectively. Preferably, and as shown, the cover flaps are of a generally trapezoidal shape in plan, with rounded ends 16, which shape may also be broadly designated as segmental; and in their operative covering position, shown in Fig. 1 for example, these cover flaps cooperate in non-overlapping relation to cover only partly the top of the container, leaving a relatively large central opening 17 and corner openings 18, each of which, in this instance, is connected to the large central opening by a narrow opening 19. Preferably also, these cover flaps are more or less rounded or arcuate in lines transverse to their hinge lines, as indicated more particularly at 20 in Figs. 2, 3, 7 and 8, to present each flap with a concave inner face. In this form of container, the side walls 11 and 12 and the corner walls 13 meet the bottom of the container at obtuse angles while each corner wall 13 also meets the adjacent side walls 11 and 12 at obtuse angles, interiorly of the container, so that, although the container body is of rectangular contour in general plan, its meeting walls form only obtuse angles interiorly of the container. As will later more fully appear, this is a form of container which, when properly dimensioned in relation to the globular articles with which it is designed to be used, such as oranges or peaches, for example, will snugly hold, in an advantageous systematic arrangement, a convenient consumer-unit number of such articles of one uniform size, or of a limited range of more than one standard size, while at the same time this form of container is one which can readily be constructed of boxboard of sufficient thickness and rigidity to render the container structurally strong and resistant to deformation under all reasonable or normal conditions of use.

Suitable fastening or securing means is provided to hold the cover flaps in their closing or covering position shown wherein they contact the upper group of globular articles 21, such as oranges, for example, with which the container is snugly filled, holding them against substantial relative movement one to the other, and also preventing them from being spilled out of the container. Most desirably, the said fastening or securing means is elastic or resilient and sufficiently yielding to permit any or all of the cover flaps to be swung back to enable more complete inspection of the contents of the package, the resilient means acting, upon release of the flaps, to return them automatically to their normal closing position. In the present example, stout rubber bands or elastics 22, are employed as resilient securing or fastening means and have been found to be especially advantageous and practical for the purpose in view.

In the embodiment here illustrated, the container is made of paper board in laminated sheet form of sufficient thickness and rigidity to render both the body and the cover flaps structurally strong, rigid and resistant to deformation under all reasonable or ordinary handling conditions. In the broader aspects of the invention, the bottom, side and corner walls, and the cover flaps of the container, may be formed all in one piece of the aforesaid sheet material, with a suitable flexible or hinging joint formed in the body of the sheet material at the junction between the cover flaps and the side walls; or some of these parts may be in one piece separate from the others or each of them may be formed as a separate piece, and the individual parts secured together in any suitable manner, with provision, in any event, of course, for a hinging movement of the cover flaps on the side walls of the container. In the best embodiments of the invention, however, including the embodiment illustrated in Figs. 1 to 9 inclusive, the bottom, side and corner walls, and the cover flaps of the container are constructed all in one piece of the sheet material. This gives a ruggedness and structural rigidity to the container parts which is especially pronounced and satisfactory when the container takes the form illustrated in Figs. 1 to 9 inclusive, having plane lateral boundary walls somewhat flared outwardly toward the top, with flattened corners, and cover flaps of outwardly rounded contour in lines transverse to their hinge lines. In practice, this rounded contouring of the cover flaps may be accomplished by scoring the sheet material on the inner face of each flap in lines, indicated at 23 in Figs. 7, 8 and 9, parallel to its hinge line and extending in a series therefrom toward the front edge of the flap, and bending the flat sheet material of the flap upon the scored lines in the course of the manufacturing operations.

Referring to Fig. 10, the lines of cut and scoring of the boxboard blank for the above-de-

scribed container are such as to form the blank with a central rectangular portion 10, forming the container bottom (unapertured in this instance) of the container when the blank is properly bent or folded along the scored lines, two pairs of opposed side members 11 and 12 of trapezoidal shape, disposed about the central portion of the blank with their longer bases disposed outwardly therefrom and forming the side walls 11 and 12; wing tabs 13, disposed in pairs on the opposite ends of the side members and forming the corner walls 13, and terminal flaps 14 and 15 on the longer bases of the side members 11 and 12, respectively, and forming the cover flaps 14 and 15 of the container. As shown in Fig. 10, the rectangular central portion 10 of the blank is defined by two rectangularly related pairs of straight lines, 11' and 12', of scoring in the material of the blank on its top face. Each of the opposed trapezoidal side members 11 is defined by one of the scoring lines 11', that line marking its shorter base and junction with the central portion of the blank; by a line of scoring 14' parallel to the line 11' and forming its longer base line; and by transverse lines of scoring 13' forming its opposite end boundaries. Likewise, each of the opposed trapezoidal side members 12 is defined by one of the scoring lines 12', that line marking its shorter base and junction with the central portion of the blank; by a line of scoring 15' parallel to the line 12' and forming its longer base line; and by transverse lines of scoring 13' forming its opposed end boundaries. The segmental shaped flaps 14 and 15 extend, of course, from the scoring lines 14' and 15' as terminal flaps on the side members 11 and 12, respectively; and those scoring lines 14' and 15' are so made as to form a hinge connection between the flaps and the side members. Also, the triangular shaped wing tabs 13 extend from the scoring lines 13' of the side members 11 and 12. The sheet material of the flaps 14 and 15 is scored in a series of equally spaced lines 23 parallel to their hinge lines, in order to permit bending the flaps from their initially flat sheet form into their final outwardly bowed or curved contour in the finished container.

In forming the container from the blank, each of the four side portions as a whole is bent upwardly from the central portion of the blank on the scoring lines 11' and 12' to bring the side members 11 and 12 into position to form the side walls of the container. The wing tabs on the opposite ends of each side wall are then bent out of the plane of said wall and lapped upon the tabs on the ends of the adjacent side walls, and the lapped tabs are secured together to form the corner walls 13. Although any other suitable securing means may be employed, it has been found advantageous to secure the lapped tabs together by stapling with a ribbon staple, such as indicated at 24 in Figs. 1 to 6 inclusive. The cover flaps may then be bent from their initial flat sheet form to bow them outwardly into the curved contour in lines transverse to their hinge lines which has already been mentioned as a desirable contouring for these flaps, or the flaps may be retained in their flat sheet form until the container is ready for use and the contouring of the flaps then made.

In addition to the advantageous features of this form of container which have already been mentioned, it is to be noted that when the container is made from a single blank of boxboard in the manner described above, the corner walls are of double thickness of the sheet material so that, when the container is filled, the package as a whole is substantially reinforced at the corners which are the points in a package of generally polygonal shape usually subject to the greatest strain in the handling of the package and where such a package is most apt to break open.

As hereinbefore pointed out, one of the more specific objects of the invention is to provide a packaging container constructed of boxboard and so dimensioned and proportioned as to hold snugly in predetermined systematic arrangement, a convenient consumer-unit number or approximate weight of globular articles, such as oranges or other citrus fruits, or peaches, for example, of one uniform standard size, or of a limited range of more than one standard size. The form of the novel boxboard container illustrated in Figs. 1 to 9, inclusive, is particularly adapted to securely package a consumer-unit number of such articles in an arrangement of the articles in two groups constituting a minor proportion and a major proportion, respectively, of the total number of the globular articles comprised in the given consumer unit and to display the articles of the major group within the package. This arrangement is broadly one in which the articles of the minor or smaller group are disposed within the normally lower part of the container, directly upon the bottom, in two rows extending longitudinally (i. e. parallel to the longer side walls 11) of the container body, with said rows in contact with each other or virtually so, and also in close approach to or even directly in contact with the side walls 11. The major or larger group of articles constituting the remainder of the unit is located as a whole above the minor group, all the globular articles comprised therein projecting above the upper edge of the tray member or body of the container and therefore being visible to a greater or less extent even when the cover flaps are in their normally closed position, and being substantially wholly exposed to view when the flaps are lifted or swung back. This arrangement or position-pattern of the upper and larger group of articles is always characterized, in this particular form of package, by two outer longitudinal rows parallel to the two rows of the lower group but each containing one more article than the corresponding row of the lower group. These outer longitudinal rows of the upper group are spaced apart by the remaining articles of the upper group which may or may not also contact with the articles of the lower group.

The specific container of Figs. 1 to 9, inclusive, is designed to hold one dozen oranges, all of one standard size or divided into oranges of that standard size and the standard size next smaller, and in this particular instance, the arrangement which has just been described is specifically as illustrated diagrammatically in Figs. 6, 7 and 8. It will be seen that the minor or lower group consists of four articles in two longitudinal rows, while the upper or larger group consists of eight articles arranged in two outer longitudinal rows of three each which are spaced apart by a single longitudinal row of two articles, these two articles contacting also with the articles in the lower group and projecting somewhat higher than the remaining articles of the upper group. This gives a slightly rounded general contour to the top of the contained unit number of globular

articles which is a desirable feature for purposes of display by dealers. The arrangement as a whole presents a pleasing and attractive appearance, permitting a prospective purchaser to see eight of the twelve articles, such as oranges, without even having to lift the cover flaps; and upon the cover flaps being lifted, the eight articles are very easily still more fully exposed to view. The package is then restored to its original partly covered condition simply by releasing the cover flaps which automatically resume their closing position.

The diagrammatic illustration in Figs. 4 to 9 inclusive of the described arrangement of the articles within the container is, of course, based on the assumption that the articles are truly spherical; and, when articles of that shape are packed in the container in the arrangement just described, a space, indicated at **25** in Fig. 6, is left unoccupied at each end of the central longitudinal row of articles in the upper group and also a space, indicated at **25'** in Fig. 9, is left unoccupied between each article of the lower group and the adjacent corner wall **13**. However, as will presently be more particularly pointed out, these spaces will be more or less filled when the container is packed with oranges or other generally globular fruits which, as noted above, are never truly spherical and frequently depart rather widely from that precise shape. Nevertheless, whether the articles are of truly spherical shape and the mentioned spaces remain unoccupied or not, the articles are virtually locked in their described arrangement against substantial relative movement one to the other by the cover flaps of the container and their holding means which latter firmly engages the flaps and presses them against the articles of the upper group; also by the engagement of the articles one with another and with the walls of the container. When oranges or the like articles of fruit are packed in the container in the described arrangement, the upper end spaces **25** and the lower corner spaces **25'**, left in the container when the articles are truly spherical in shape, provide means for taking care of the more or less wide variations from true sphericity in packing this particular unit number (e. g. a dozen) of the oranges into the container, it being possible to turn the corner articles and center-row articles, for example, of the upper or larger group and any one of the articles of the lower or smaller group in such a way that irregular projections can extend into these end and corner spaces, respectively.

It is also to be noted that while there is often some slight variation in any standard size of articles of such fruit, due to inherent limitations of the mechanical sizing methods employed, or sometimes due to withering and shrinkage, the provision of the hinged part-cover flaps and the resilient or elastic securing means which yieldingly holds them in their partly closing and retaining positions, renders the packaging container self-adjusting as to capacity, within reasonable limits, to take care of these variations. By giving the cover flaps the longitudinal and transverse dimensions relative to the top of the container shown in the drawings and forming them of general trapezoidal shape in plan, with rounded corners **16**, and spacing them apart at their hinge lines in the region of the corners of the container, these flaps do not overlap when exercising their closing and retaining functions; and in what may be termed their normal or mean closing position, adjacent flaps do not even touch, as is evident from the drawings. If the fruit of a given standard size which the container is designed to hold happens to run somewhat oversize, it can nevertheless be accommodated because in that case the flaps simply occupy a slightly higher position with somewhat greater spacing between their edges at the points **19**. On the other hand, if the fruit is running somewhat undersize, or in cases where half of the lot designed for the container is of the next smaller standard size, the aggregate volume of the lot is somewhat less and the flaps move further down in attaining their closing position and thus contract the effective holding capacity of the container. In the limiting position for such contraction, the curved corners of adjacent cover flaps actually contact by abutment, and owing to the substantial thickness and stiffness of the boxboard material of the flaps and the relative capability of their being bent only outwardly by reason of the location of the lines of scoring on their inner faces, such abutment is positive and produces what is virtually an arching effect in the cover construction, rendering it resistant to a considerable downward thrust. Due to this fact, and to the fact that the boxboard tray member or body of the container is also relatively stiff and strong, it is entirely feasible in practice to stack the filled containers one upon another to a considerable height without crushing the lowermost container or containers in the stack or injuring the contents thereof. Moreover, when fresh fruit is packed in these containers and the packages are stacked for purposes of storage or transportation, the fruit is still ensured the ample ventilation which is so necessary for its continued well-being, due to the large proportion of the top of the container left uncovered by the cover flaps, and the fact that packages of this form cannot be stacked together in a manner to avoid leaving channels between them which are effective for air circulation.

The interior surface contour of the container illustrated in Figs. 1 to 9 inclusive, gives this form of the container additional advantages, especially for the packaging of globular fruits. Because of the obtuse meeting angles of the side and corner walls of the container, their outward flare toward the top, and the increase in width of each corner wall upwardly, there is a spread of the corner spaces of the container toward its top which enables the opposite end oranges (e. g.) of the two outer rows of the upper group to fit into the corner spaces at the level of that group sufficiently to contact the corner walls as well as the side walls of the container so that those oranges are laterally engaged by those walls at three spaced points or localities on the surface of each such orange. The result is a very substantially better distribution of outward pressures of the corner oranges on the container walls developed in packing the fruit and of inward pressures of the container walls upon those oranges developed in the handling of the packages, especially when they are stacked one upon another, than would occur if the articles were packed in containers having right or acute angle corners, and a consequent reduction in liability of injury to the oranges or of breaking the container open.

Figs. 11 to 15 inclusive show another practical form of boxboard container embodying my in-

vention. The container shown in these views embodies the same general principles of the invention involved in the container already described but differs therefrom in certain important respects presenting additional detailed features of the invention. One outstanding difference is that the packaging container shown in Figs. 11 to 15 inclusive is designed for an arrangement therein of the globular articles in a single layer or group resting on the container bottom and the body or tray portion of the container is so shallow that the articles of this single layer project well above its upper edge.

The container illustrated in Figs. 11 to 15 inclusive is triangular in general plan, and in this instance is designed to contain half a dozen oranges, for example. The tray or body portion is formed with a plane bottom **26**, three plane side walls **27**, inclined or flared outwardly toward the top, and three plane corner walls **28** which are likewise flared outwardly. The three side walls are disposed in acute-angled relation and are of equal length to give the container the general form of an equilateral triangle in plan, having short, plane corner walls at the vertices, in the particular embodiment here shown. Three cover flaps **29**, of equal length, are hingedly united to the three side walls. Preferably, these cover flaps are outwardly curved or bowed in lines transverse to their hinge lines as in the case of the flaps of the preceding form of container.

Means for holding the cover flaps in closing position is here shown as comprising one rubber band **30** cross-looped around two corners of the package, which amply suffices to hold these flaps in position and at the same time ensure that the rubber band will not slip off accidentally. Obviously, one or more rubber bands or other fastening means may be applied to hold the flap ends at the third corner of the package if desired, although this is unnecessary because the structural stiffness of the boxboard flaps prevents said flap ends from separating when those at the first two corners are secured as described.

Like the preceding form of container, the form of container illustrated in Figs. 11 to 15 inclusive may be constructed of separate pieces of any suitable boxboard, with the individual parts properly secured together; but this container is preferably formed all in one piece from a blank of suitable boxboard material, such as paper board in laminated sheet form, of sufficient stiffness and rigidity to give the finished container of the form shown the structural strength, rigidity, and resistance to deformation required for the uses of the container hereinbefore mentioned. One form of boxboard blank of my invention which offers particular advantages in the manufacture of a container of the form illustrated in Figs. 11 to 15, inclusive, is shown in Fig. 16. The lines of cut and scoring of that blank are such as to give it a central portion **26** of generally triangular outline (equilateral), designed to form the bottom **26** (without aperturing in this instance) of the finished container; three base tabs **28'** of trapezoidal shape extending from the three corners of the central or base portion of the blank; three side members **27** of trapezoidal shape extending from the three side lines of the central portion of the blank, with their longer base lines disposed outwardly, to form the side walls **27** of the container; wing tabs **28''** of rhomboidal shape, disposed in pairs on the opposite outwardly inclined end lines of the side members **27**, and designed, in cooperation with the base tabs **28'**, to form the corner walls **28** of the container; and terminal flaps **29** extending from the longer base lines of the side member to form the cover flaps **29** of the container.

The central or base portion **26** of the blank is defined by three straight lines of scoring **26'** in the material of the blank on its top face, of equal length and disposed in acute-angled relation to one another but terminating short of meeting points, and three relatively short and straight lines of scoring **26''** connecting the side lines at the corners or vertices of the generally triangular shaped figure, with the meeting lines forming obtuse angles, specifically angles of 120°. The side members **27** extend from the scored side lines **26'** and the base tabs **28'** extend from the scored corner lines **26''** of the base portion of the blank so as to enable these parts to be bent up from the base portion on these scored lines in the formation of the container. The junction between each side member **27** and the terminal flap extending therefrom is marked by the line of scoring **27'** which also marks the longer base line of the side member and is formed to provide a hinged connection between the flap and the side member. The junction lines between each side member **27** and the pair of wing tabs extending therefrom is marked by the lines of scoring **27''** which define the opposite end boundaries of the side member, the wing tabs being bent upon these scored lines out of the plane of the side member in the formation of the container. The sheet material of each flap **29** is scored in a series of equally spaced lines **31**, parallel to its hinge line, in order to enable the flap to be bent from its initially flat sheet form into its finally outward bowed or rounded contour.

In forming the container from the blank, after the side members **27** and the base tabs **28'** have been bent up from the base portion of the blank, the wing tabs **28''** on the opposite ends of each side wall **27** are bent out of the plane of that wall to lap upon the outer face of the adjacent base tab **28'** and the lapped tabs are then secured together, preferably by a ribbon staple, as indicated at **32** in Figs. 11 to 15 inclusive, to form the corner walls of the container.

Two concrete embodiments of the novel packaging container and boxboard blank have been described above and illustrated in the drawings as examples of the practice of the invention more particularly in the packaging of fresh fruits and vegetables of generally globular shape for their distribution and sale. It is evident, however, that the invention is not limited to the examples of its practice here given, but that the invention is of broad scope and its principles may be embodied in containers differing widely as to their specific form, proportioning and mode of construction from the boxboard material and in blanks also differing widely in specific form and detailed features.

What is claimed is:

1. A one-piece blank of boxboard for forming a container, said blank comprising a central or base portion defined by a polygonal outline scored in the material of the blank on one face thereof, said base portion being adapted to form the bottom of the container, side members extending separately in angularly relation to one another from said base portion, said side members being adapted to be bent on said scored lines upwardly from said base portion to form side walls of the container, and a terminal flap

extending from each said side member and having a scored line of junction therewith on said one face of the blank, said scored lines of junction being formed to provide hinges for said flaps and said flaps having shapes and longitudinal and transverse dimensions adapting them to function as hinged cover members for the container with each cooperating with the others in closing position and in non-overlapping relation to partially cover the top of the container, leaving the same open both centrally and at spaced peripheral localities.

2. A one-piece blank as defined in claim 1 and in which said terminal flaps are of trapezoidal shape in general plan with their shorter base lines disposed outwardly of their said lines of junction with said side members.

3. A one-piece blank as defined in claim 1 and in which said side members are of trapezoidal contour with the longer base line of each extending along said line of junction of the terminal flap therewith, said side members being adapted to form side walls of said container outwardly inclined or flared toward the top.

4. A one-piece blank as defined in claim 1 and in which each of said terminal flaps is scored on said one face of the blank in lines parallel with the scored line of its junction with the corresponding side member of the blank and with said lines forming a series extending transversely of the flap.

5. A one-piece blank of boxboard for forming a container, said blank comprising a central or base portion defined by a polygonal outline scored in the material of the blank on one face thereof, said base portion being adapted to form the bottom of the container, side members extending separately in angular relation to one another from the scored boundary lines of said base portion, a base line of each said side member being defined by one of the scored side lines of said base portion, a terminal flap of generally segmental contour on each said side member with its base line defined by a scored line on said one face of the blank parallel with the scored side line of said base portion from which the side member extends, a wing tab on each of the opposite ends of each said side member with the junction of said tabs with said side member marked by scored lines extending transversely of said member, said side members being adapted to be bent on the scored boundary lines of said base portion upwardly from the plane of said base portion to form side walls of the container and said tabs on the opposite ends of each said side member being adapted to be bent on said transverse score lines out of the plane of said side member and to be lapped upon the tabs on the opposed ends of adjacent side members, when said side members are bent upwardly, to form corner walls of the container, and said terminal flaps having longitudinal and transverse dimensions adapting them to function as hinged cover members for the container, each in non-overlapping cooperation with the others in closing position, to partially cover the top of said container, leaving the same open both centrally and at the corners thereof.

6. A one-piece blank of boxboard for forming a container, said blank comprising a central or base portion defined by a rectangular outline scoring in the material of the blank on one face thereof, said base portion being adapted to form the bottom of the container, four side members of trapezoidal shape having their shorter base lines defined by the scored lines marking the rectilinear boundaries of said base portion, the longer base line of each said side member being defined by a scored line parallel with that defining its shorter base line, and each said side member having a terminal flap extending from said scored line defining its longer base, each said side member also having scored transverse lines and triangular wing tabs extending therefrom at its opposite ends, said trapezoidal side members being adapted to be bent on the scored boundary lines of said base portion upwardly from the plane of said base portion to form side walls of the container inclined or flared outwardly toward the top, the tab on each end of each side member being adapted to be bent on said scored transverse lines into overlapping engagement with the tab on the opposed end of the adjacent side member, when said side members are bent upwardly from said base portion of the blank, to form corner walls of the container, and said terminal flaps being adapted to be bent on said scored lines marking the longer bases of said side members so as to function as cover flaps for the container, said flaps having shapes and longitudinal and transverse dimensions adapting them to function, each in non-overlapping cooperation with the others in closing position, to partially cover the top of the container, leaving the same open both centrally and at spaced peripheral localities.

7. A one-piece boxboard blank for forming a container, said blank comprising a central or base portion defined by three straight side lines scored in the sheet material of the blank on one face thereof in acute-angled relation but terminating short of meeting points and three relatively short scored lines connecting said side lines and forming therewith a generally triangular figure but with obtuse-angled corners, said base portion being adapted to form the bottom of the container, three side members extending separately from said base portion, one each from one of said side lines, said side members being of trapezoidal contour with their shorter base lines defined by said three scored side lines, the longer base line of each defined by a scored line parallel with that defining its shorter base line and the opposite end boundaries of each defined by scored transverse lines, a terminal flap extending from said longer base line and wing tabs extending from said scored transverse lines of each said side member, said longer base line of each said side member being so scored as to form a hinge for said flap, and a base tab extending from each of said short or connecting scored lines of said base portion, said trapezoidal side members being adapted to be bent upwardly on said three scored side lines from the plane of said base portion to form side walls of the container inclined outwardly toward the top, said base tabs being adapted to be bent upwardly on said three short or connecting scored lines from the plane of the base portion of said blank and the wing tabs on the opposite ends of each said side member being adapted to be bent on said scored transverse lines to lap upon adjacent base tabs to form corner walls of the container, and said terminal flaps having shapes and longitudinal and transverse dimensions adapting them to function as hinged cover members for the container with each cooperating with the others in closing position and in non-overlapping relation to partially cover the top of said container,

leaving the same open both centrally and at spaced peripheral localities.

8. A packaging container constructed of boxboard, said container comprising a tray or body portion of polygonal contour in plan, having a plane bottom wall, plane side walls integral with said bottom wall and spaced apart peripherally at the corners of the container above its bottom wall, and wall means connecting said side walls at the corners of the container, said means comprising tabs integral with and extending from adjacent portions of at least two of said container walls at each corner of said container into overlapping relation and means securing said overlapped tabs together, and cover flaps integral with said side walls and having a hinged union therewith so as to be movable each in cooperation with the others into and out of covering position over the top of said container, said cover flaps being of such shapes and having such longitudinal and transverse dimensions that when they cooperate in covering position and in non-overlapping relation they leave the top of the container open centrally and at the corners thereof.

9. A packaging container constructed of boxboard and comprising a body portion or tray generally polygonal in plan, having a plane bottom wall, plane side walls integral with said bottom wall and of the same extent peripherally of said container as said bottom wall at their junction therewith but flared outwardly toward the top of the container to present a V-shaped spacing of the opposed ends of adjacent side walls apart in the region of the corners of said container, and corner walls formed by tabs integral with and extending from said side walls at their opposite ends, bent out of the plane of said side walls so as to dispose the tabs on the opposed ends of adjacent side walls in overlapping relation, said overlapped tabs being secured together, and spaced flap members integral with said side walls and having a hinge union therewith so as to be movable on said side walls each in cooperation with the others into and out of non-overlapping covering position over said tray portion of said container.

10. A packaging container of generally triangular contour in plan and formed from a single sheet of boxboard, said container having a plane bottom, three relatively long and plane side walls integral with the bottom, inclined or flared outwardly toward the top of the container, and disposed peripherally in acute-angled relation to each other but terminating short of meeting points, three relatively narrow end walls connecting said side walls at the vertices or corners of said container and forming obtuse angles therewith, each said end wall being formed by a tab integral with and upstanding from the bottom of the container between opposed ends of a pair of adjacent side walls and tabs integral with said side walls and extending from their opposed ends into overlapping relation with said first mentioned tab and secured thereto, and cover flaps integral with said side walls and having a scored line of junction therewith so as to be movable in hinge fashion thereon each in cooperation with the others into and out of non-overlapping covering position over the top of said container.

11. A one-piece blank of boxboard for forming a container of the character described, comprising a central or base portion of generally polygonal shape, a plurality of side members each extending outwardly from an edge of said base portion and joined thereto along a line of bending, and a plurality of cover members, each joined to one of said side members along a second line of bending substantially parallel to the line of bending first mentioned and extending outwardly from said side member, the outer portion of each cover member being sufficiently shorter, in a direction parallel to said lines of bending, than where said cover member is joined to its associated side member, to prevent overlapping of said cover members when they are in closing position and to leave the container partly uncovered.

12. A one-piece blank of boxboard for forming a container of the character described, comprising a central or base portion in the general shape of an equilateral triangle having three principle edges of equal length separated by blunt vertices, three side members each joined to said base portion along a line of bending adjacent one of the three principal equal edges thereof, each pair of such junction lines being separated from each other by a substantial space at one of said blunt vertices, and three cover members each joined to a side member along a second line of bending substantially parallel to the line of bending first mentioned, each cover member having its free or outer edge shorter than its base or line of junction to its associated side member.

13. A one-piece blank of boxboard for forming a polygonal container, comprising base, side, corner and cover portions, defined by bending lines and cooperating, in assembled relation, to form a polygonal container body having a plurality of cover members flexibly attached thereto and serving, when in covering position, to cover said body partially while leaving it uncovered centrally and at spaced peripheral localities, each of said corner portions comprising tabs cooperating to space said cover members apart at their bases.

14. A one-piece blank of boxboard for forming a generally triangular container, comprising base, side and cover portions, defined by bending lines and cooperating, in assembled relation, to form a triangular container body having a plurality of cover members flexibly attached thereto and serving, when in covering position, to cover said body partially while leaving it uncovered centrally and at spaced peripheral localities, each of said corner portions comprising tabs cooperating to space said cover members apart at their bases.

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