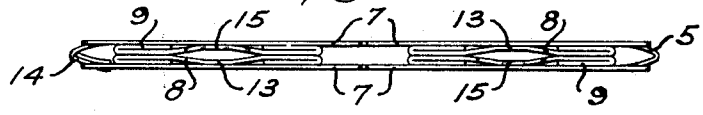
Sept. 6, 1932. D. R. RICHARDSON ET AL 1,875,497

CONTAINER

Filed Dec. 15, 1930 2 Sheets-Sheet 1

Fig. 1.



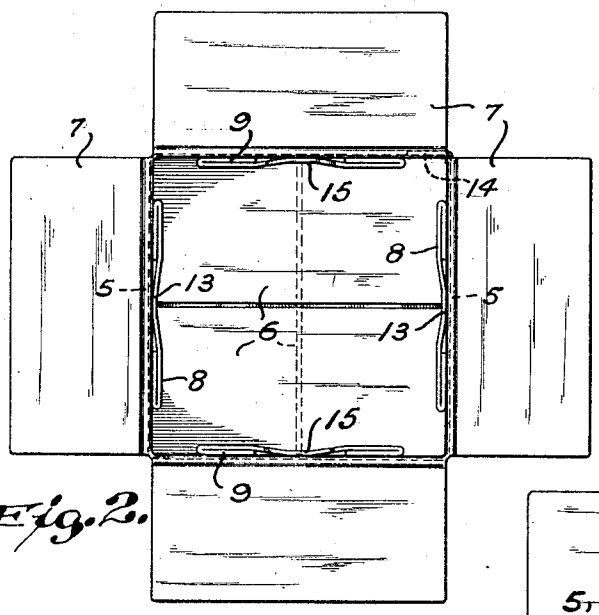


Fig. 2.

Fig. 3.

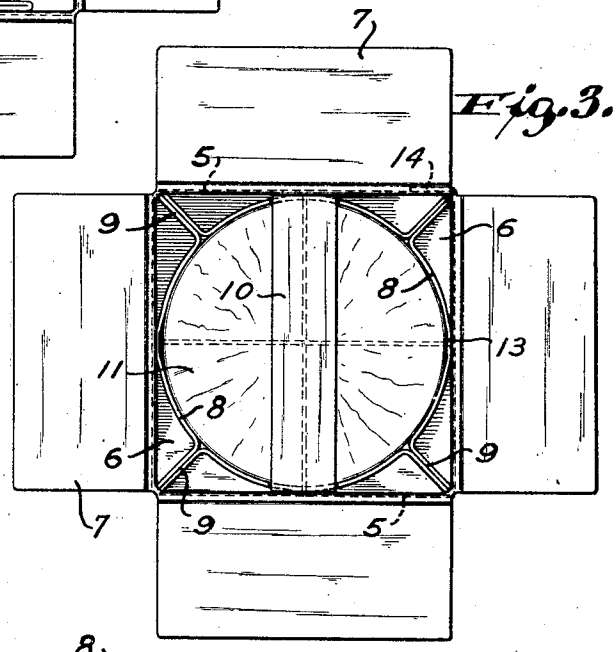


Fig. 5.

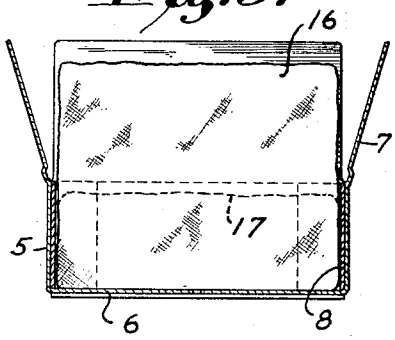
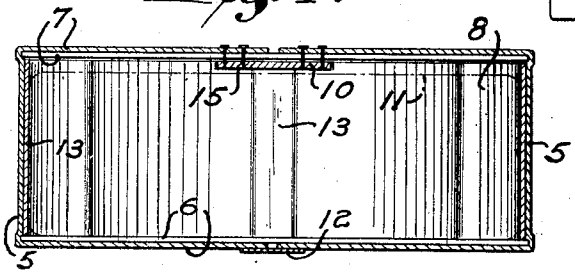


Fig. 4.



INVENTORS.
D. R. Richardson
BY H. M. Wollum.
Morsell & Morsell
ATTORNEY.

Sept. 6, 1932. D. R. RICHARDSON ET AL 1,875,497

CONTAINER

Filed Dec. 15, 1930 2 Sheets-Sheet 2

Fig. 6.

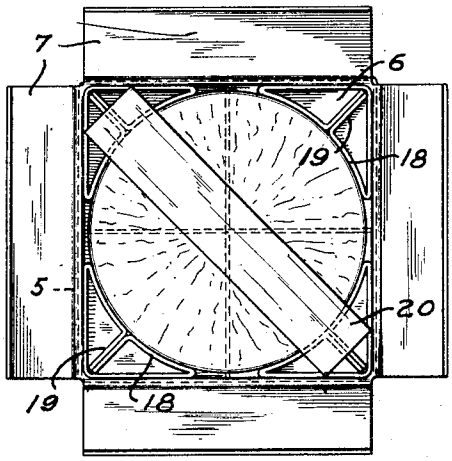


Fig. 7.

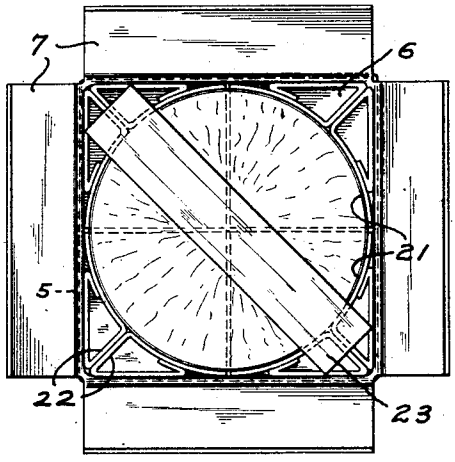


Fig. 8.

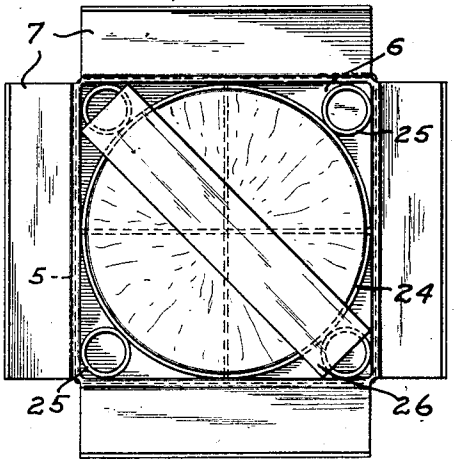


Fig. 9.

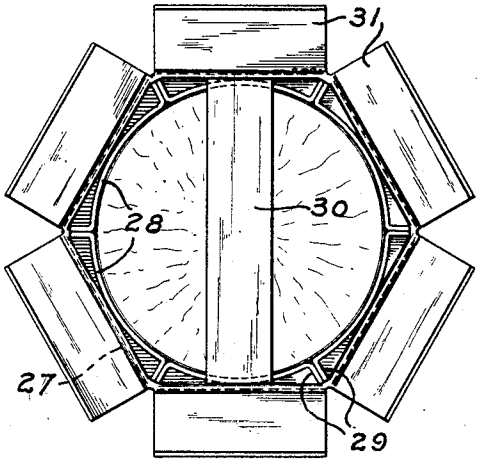
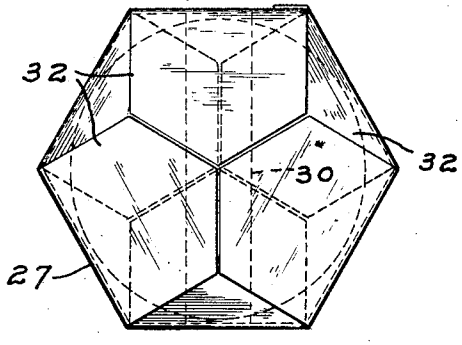


Fig. 10.



INVENTORS.
D. R. Richardson
BY H. M. Wollum.
Morsell & Morsell
ATTORNEY.

Patented Sept. 6, 1932 1,875,497

UNITED STATES PATENT OFFICE

DELL R. RICHARDSON AND HENRY M. WOLLUM, OF OWEN, WISCONSIN

CONTAINER

Application filed December 15, 1930. Serial No. 502,337.

The present invention relates in general to improvements in the art of packing, and relates more specifically to improvements in the construction and mode of utilizing containers for packing commodities such as cheese, in order to preserve and protect the same during storage and transportation.

A general object of the invention is to provide an improved container which is simple in construction and efficient in use.

In certain arts such as the cheese industry, it has long been an established practice to produce the commodity in approximately cylindrical form. The bulk of the cheese produced in such form in the United States and Canada, is known as "American" cheese, and is manufactured in several standard sizes of varying diameter but all of cylindrical shape, known to the trade as "Daisies", "Longhorns", "Flats", "Young Americas", "Cheddars", "Picnic", "Herkimer", and "Midget". It is the present universal practice to pack these various sizes of American cheese in cylindrical wooden boxes formed of a circular veneer side wall and flat wooden heads coacting therewith, and these wooden containers have been standard in the industry for many years in spite of their numerous disadvantages or objectionable features. One objection to these prior cylindrical containers is their bulk and the resultant inconvenience of handling and excessive cost of transportation, especially when the containers are empty. These prior containers are non-collapsible and the cheese producing territories are therefore abundantly supplied with relatively small producers of wooden cheese boxes located as near as possible to the factories in order to supply the demand without introducing excessive transportation charges on empty containers. Another serious objection to the prior wooden boxes, is the excessive breakage thereof which is conservatively placed by the trade at fifteen per cent. This breakage introduces other annoyances such as necessity for recooperage and adjustment of claims. Still another objection inherent in the prior wood structures is the danger of injury by slivers, protruding nails and splinters, to the handlers of the containers. A further objection to the prior cylindrical wood boxes, is the inability of the veneer forming the side walls of the container, to resist rough handling without splitting and damaging the contents thereby causing spoilage, and while these wooden containers have been utilized for many years, such continued use of an unsatisfactory article has been due to the lack of a better moderately priced container. Another objection to the veneer cylindrical containers is their inability to prevent dust and dirt from entering the same, thus making them unsanitary. These containers, due to their relative high cost, are also frequently used over without proper cleansing thereof, thereby introducing further unsanitary conditions. A further objection to these prior housing structures is their cumbersome construction and the fact that they require considerable space without properly insulating the contents. Then too, the prior veneered wood containers are relatively expensive and are also otherwise objectionable thus leaving considerable room for improvement.

A more specific object of the present invention is to provide an improved container especially adapted for the packing of round cheese or the like, which eliminates all of the objectionable features of the prior cylindrical wooden containers, hereinabove referred to.

Another specific object of the invention is to provide an improved collapsible container of polygonal external cross section, which is adapted to properly confine material having different shape from that of the exterior of the package.

A further specific object of the invention is to provide an improved box which is simple and strong in structure, and which may be readily utilized to effectively pack and conceal various commodities.

Still another specific object of the invention is to provide a relatively inexpensive, safe and quickly assembled, collapsible container, which when assembled possesses extreme rigidity and minimum weight, and which may be collapsed to occupy minimum space.

Another specific object of the invention is

to provide an improved packing box structure for cheese or the like, which will eliminate possible damage and consequent spoilage of the enclosed product and which will also resist destruction during transportation and stacking.

A further specific object of the invention is to provide an improved housing structure which cannot be readily damaged, which presents only smooth and safe surfaces for handling, which provides for proper insulation and confinement of its contents, and which presents a neat and pleasing appearance.

Still another specific object of the invention is to provide an improved container which permits convenient access to its contents, which is sanitary in construction, which may be stored in minimum space, and which can be manufactured in quantities at minimum cost.

These and other objects and advantages of the present invention will appear from the following detailed description.

A clear conception of a number of embodiments of the present invention and of the mode of constructing and of utilizing containers built in accordance therewith, may be had by referring to the drawings accompanying and forming part of this specification, in which like reference characters designate the same or similar parts in the various views:

Fig. 1 is a side view of one of the improved containers, showing the same in collapsed condition;

Fig. 2 is a top view looking into one of the improved containers prior to complete assembly thereof;

Fig. 3 is a top view looking into the container of Fig. 2, showing the same completely assembled and packed with cheese;

Fig. 4 is an enlarged central vertical section through the container of Fig. 3, showing the same in sealed condition;

Fig. 5 is a central vertical section through one of the containers showing material disposed within a bag which is about to be housed within the container;

Fig. 6 is a top view of another form of improved container showing a modified construction of corner pieces therein;

Fig. 7 is a top view of still another form of improved container showing a further modification of the corner pieces therein;

Fig. 8 is a top view of another form of the improvement, showing still another modification of internal construction;

Fig. 9 is a top view of one of the improved containers having hexagonal transverse cross section; and

Fig. 10 is a top view of one of the improved containers having hexagonal transverse cross section, showing a modified form of flap for sealing the upper and lower ends thereof.

While the containers hereinafter specifically described by way of illustration of the invention, are especially adapted for the purpose of packing round cheese, it will be apparent that the improvement is capable of other uses, and it is therefore not contemplated to restrict the invention by such specific disclosure. Although the use of containers having rectangular or hexagonal tranverse cross-section, and formed of insulating material such as paper or fibre board, may introduce certain advantages when utilizing the improved container to pack certain commodities, the invention should not be unreasonably limited by such formation and selection of materials.

Referring specifically to Figs. 1 to 4 inclusive of the drawings, the container shown therein comprises in general a series of four inter-connected side walls 5; lower and upper walls or closure flaps 6, 7 pivotally associated with the lower and upper edges of the side walls 5 and cooperable therewith to form a complete enclosure; secondary means or side walls 8 secured to the medial portions of the main side walls 5 and having integral strut portions 9 cooperable with the corners formed at the junctions of the side walls 5; and a board or slab 10 cooperable with the upper edges of diametrically opposed secondary walls 8. When the container has been assembled, the successive secondary side walls 8 cooperate to provide a substantially cylindrical housing space for a cheese 11 or the like, and the slab 10 besides providing an auxiliary chamber or air space above the cheese 11, also serves to effectively maintain the cover flaps 7 in closed position.

The side walls 5 and closure flaps 6, 7 may be formed of a single sheet of suitable material, properly scored to permit convenient relative folding of these parts when it is desired to assemble or to collapse the container, and the one piece container is shown in knocked-down condition in Fig. 1. The two side walls 5 at the ends of the container blank, may be permanently united by means of an auxiliary flap 14 formed integral with one of these walls and sewed, stapled or otherwise attached to the other. When the container has been assembled, the bottom flaps 6 may be secured in place by glueing and applying a strip 12, and the cover flaps 7 may be detachably secured in closed position by means of screws or nails 15 driven therethrough and into the slab 10 which may be formed of wood.

The secondary side walls 8 may have their medial portions 13, glued, sewed, or otherwise permanently attached to the side walls 5, and are also collapsible to the positions shown in Figs. 1 and 2, so as not to interfere with collapse of the main container whenever desirable. The diametrically opposite secondary walls 8 may either be provided

with notches 15, or merely cut and scored, for the reception of the ends of the slab 10, and the walls 8 and strut portions 9 when assembled as shown in Figs. 3 and 4, obviously not only provide the substantially cylindrical housing space above referred to, but also materially strengthen the container and enable the same to resist distortion due to externally applied pressures or blows. In some cases it may also be desirable to provide an additional insert sheet in the bottom of the container between the lower ends of the walls 8 and the bottom flaps 6, thus giving the container bottom triple instead of double thickness.

When a cheese 11 has been inserted within the container of Figs. 1 to 4 inclusive, the secondary walls 8 are slightly distorted to conform to and to snugly engage the cheese periphery, and the strut portions are then held firmly in the position shown in Fig. 3 thereby not only maintaining the cheese 11 centrally within the outer polygonal container, but also bracing the corners and holding the secondary walls 8 in place. The resiliency of the assembled structure moreover prevents injury of the cheese due to sudden impact against the container. The slab 10 coacting with the notches 15, stiffens the outer container against side pressure, and this slab 10 also coacts with the secondary side walls 8 to protect the cheese 11 against pressure applied to the cover flaps 7 besides providing simple means for detachably attaching the cover flaps 7 in place with nails 15. The slab 10 furthermore provides the auxiliary air space or clearance above the cheese 11, hereinabove referred to, and this space is very desirable and important in the packing of cheese, since cheese will "heat" and spoil when confined under pressure due to stacking the containers upon each other.

In Fig. 5, the container is identical with that shown in Figs. 1 to 4 inclusive, except that the slab 10 has been omitted and a material confining bag 16 has been inserted within the housing space bounded by the secondary walls 8. With this construction, the bag 10 may first be inserted within the housing space and subsequently supplied with relatively loose material to the level 17. The top of the bag 16 may then be folded over and the cover flaps 7 subsequently closed and sealed, without necessarily utilizing the slab 10. The container in this case likewise protects the confined material against external pressure or impact, and retains all of the advantageous features previously referred to.

The outer containers of Fig. 6, 7 and 8 are also identical with the outer containers of Figs. 1 to 5 inclusive, but the formation of the secondary walls and of the reenforcing means therefor, are different. In Fig. 6, the secondary side walls 18 and the strut portions 19 are formed as detachable insert pieces. Each of these insert pieces comprises a single strip of material properly scored and bendable to form a complete corner piece including adjoining walls 8 and strut portions 9. The successive corner pieces are not interconnected, and the slab 20 preferably spans the outer container diagonally as shown. While this modified structure may not prevent skewing of the outer container as effectively as the structure of Figs. 2, 3 and 4, it nevertheless introduces all of the other advantages heretofore mentioned including the knock-down feature. The detachable corner pieces furthermore permit removal of the secondary walls 18 and strut portions 19 whenever desired and enable normal use of the outer container alone when the cylindrical housing space is not required.

In Fig. 7, the secondary side walls 21 and the strut portions 22 are likewise formed as detachable insert pieces. Each of the corner inserts of this modification, comprises two similar elements each formed of a single strip of material scored and bent into triangular form. The strut portion 22 of one of these corner elements, coacts directly with the strut portion 22 of the other, and the slab 23 is again disposed diagonally of the outer container and coacts with the upper extremities of four of the insert elements. The modified structure of Fig. 7 obviously possesses all of the advantages of the structures shown in Figs. 1 to 6 inclusive.

In Fig. 8, the secondary side walls 24 are formed as a single band bent into circular form, and the corners are provided with reenforcing tubes 25. The tubes 25 may be ordinary mailing tubes of proper diameter cut to proper length, and the slab 26 may obviously be disposed either diagonally as shown, or perpendicular to the side walls 5 of the outer container. With this construction, no scoring of the wall 24 is necessary and the tubes 25 serve as struts for reenforcing the outer container and the wall 24. This modified structure also obviously possesses all of the advantages of the structures shown in Figs. 1 to 7 inclusive, and may be somewhat more readily produced and assembled.

In Figs. 9 and 10, the invention is shown applied to hexagonal containers which are capable by staggered disposition thereof, of being packed for shipment or storage, in less space than rectangular sectioned containers having equal minor diameter. In these hexagonal types, the outer containers are again formed of a single sheet of material comprising end connected side walls 27 and lower and upper closure flaps formed integral therewith. The secondary walls 28 and strut portions 29 are formed and attached in a manner similar to the corresponding parts of the structure of Figs. 1 to 4 inclusive. The strut portions 29 cooperate with the corners of the outer side walls 27 to reenforce the structure, and are

foldable in back of the secondary walls 28 to permit collapse of the container when desired. The slab 30 of the hexagonal container may be disposed either as shown in Figs. 9 and 10, or diagonally across the hexagon, and again serves to reenforce the structure, to provide the desired space above the cheese 11, to protect the cheese 11, and to provide for detachable attachment of the cover flaps. In Fig. 9, the closure flaps 31 are of rectangular form, thus providing three thicknesses of flaps when folded to closed position, but in Fig. 10, the outer portions of the closure flaps 32 have been cut away to provide only two thicknesses thus perhaps permitting the assembled container to coact without danger of tilting, with the floor and with other containers. The hexagonal containers of Figs. 9 and 10, again possess all of the advantages of the rectangular containers and may obviously be provided with modified corner pieces of the types disclosed in Figs. 6, 7 and 8.

From the foregoing description, it will be apparent that the invention not only accomplishes the objects previously referred to in the introduction of this specification, but also provides an effective method of packing and of preserving cheese. The containers when collapsed, obviously occupy only a small fraction of the space occupied by a permanently assembled container of equal capacity, and no modification of the present established method of forming cheese, is necessary in order to utilize the improved structures. The reenforcing struts at the corners are important since they protect both the container and the contents thereof, and the use of paper or fibre board in the construction of the containers, eliminates the sliver and splinter danger of handling. With the improved containers, the contents are at all times readily accessible, and the boxes may be stacked or roughly handled without danger of damaging the containers or their contents. While several modified constructions have been shown and described by way of illustration, other modifications may also be produced with the general knowledge of the improvement herein set forth.

It should therefore be understood that it is not desired to limit the invention to the exact details of construction and to the precise mode of utilizing the containers herein shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

It is claimed and desired to secure by Letters Patent:

1. In a container, an endless series of end connected side walls foldable at their adjoin-ends to either form a box structure when distended or lie flat in close proximity to each other when collapsed, and a secondary flexible wall permanently attached intermediate its ends to the inside medial portion of each of said side walls, each of said secondary walls having its opposite ends remote from the place of attachment thereof to the adjacent side wall foldable to position said ends either diagonally of the distended box structure to distort the series of secondary walls into continuous circular formation due to the permanent medial attachments thereof or between the adjacent side and secondary walls so as to cause the composite wall structure to fold flat when collapsed.

2. In a container, an endless series of end connected side walls foldable at their adjoining ends to either form a box structure when distended or lie flat in close proximity to each other when collapsed and having cover flaps formed integral therewith, a secondary flexible wall permanently attached intermediate its ends to the inside medial portion of each of said side walls, each of said secondary walls having its opposite ends remote from the place of attachment thereof to the adjacent side wall foldable to position said ends diagonally of the distended box structure to distort the series of secondary walls into continuous circular formation due to the permanent medial attachments thereof and diametrically opposite of said secondary walls having medial end notches located in proximity to the adjacent cover flaps, and a reenforcing strip coacting with said notches and with said flaps when the box is distended and closed to prevent inward collapse of said side walls and flaps.

In testimony whereof, we affix our signatures.

DELL R. RICHARDSON.
HENRY M. WOLLUM.