

Aug. 8, 1944.

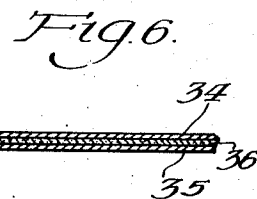
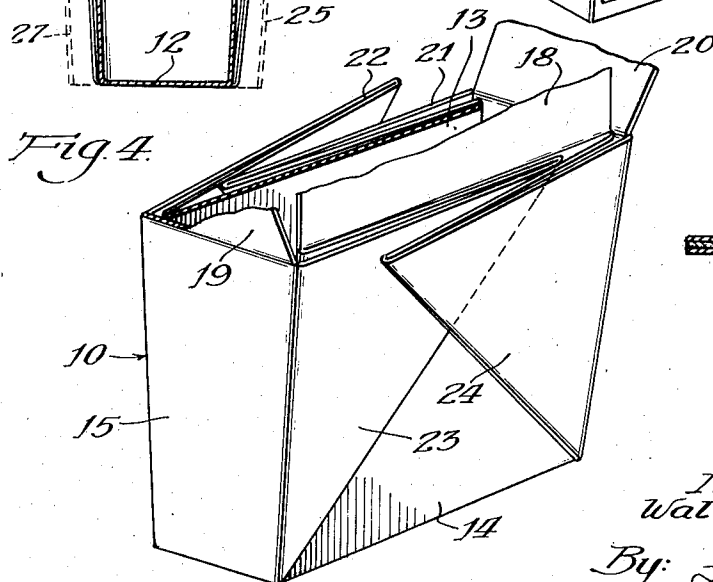
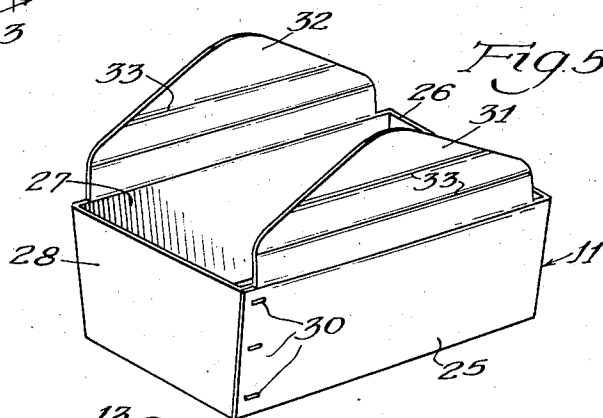
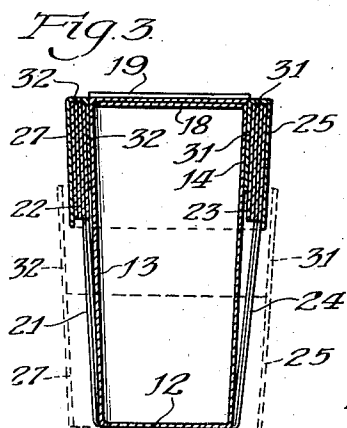
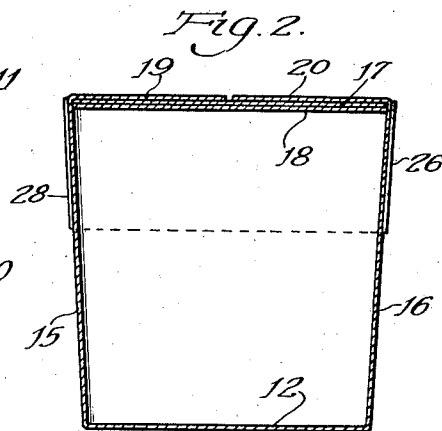
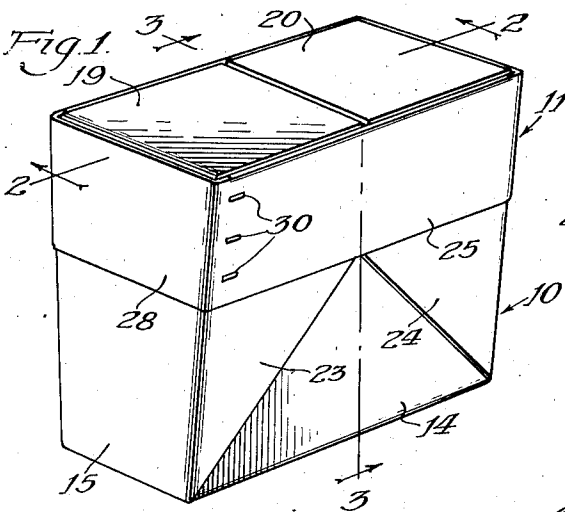
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2,355,233

CONTAINER

Filed Feb. 19, 1943

2. Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 10.

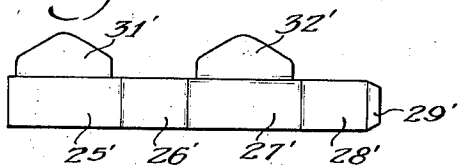


Fig. 7.

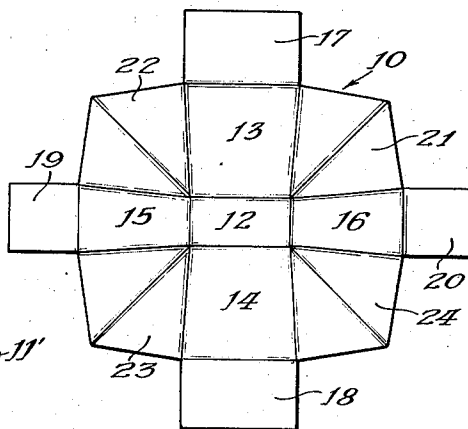


Fig. 9.

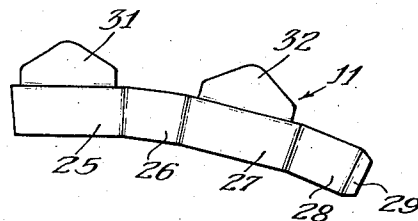
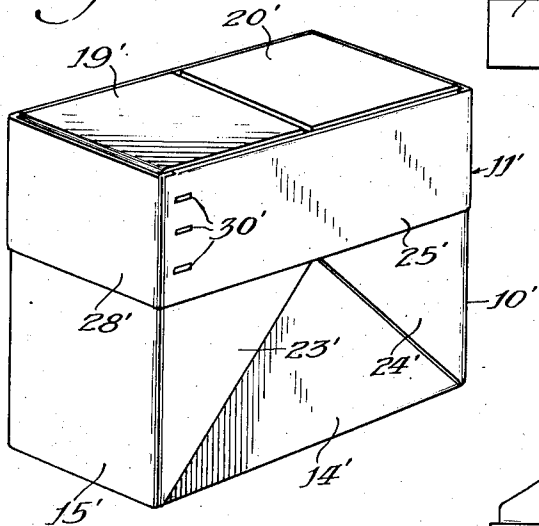


Fig. 11.

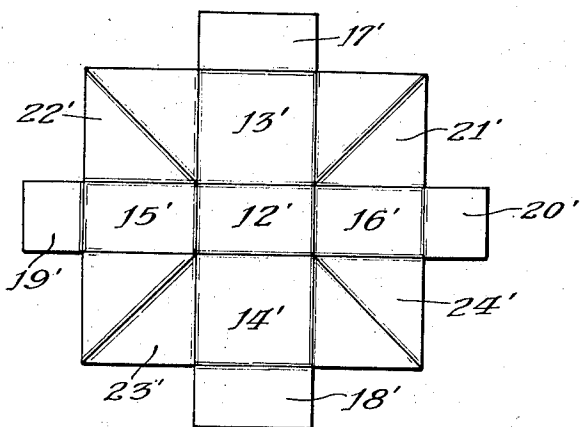


Fig. 8.

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UNITED STATES PATENT OFFICE

2,355,233

CONTAINER

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3 Claims. (Cl. 229-24)

This invention relates to an improved container adapted primarily for frozen foods.

More particularly the invention relates to the construction of a novel moisture-proof, weather-proof and leak-proof fibrous container of a novel and reinforced construction adapted for packaging, storage and transportation of water or oil containing materials of various nature including liquid, semi-liquid and semi-solid materials, and more particularly frozen foods ranging from frozen meats to fluid broken eggs.

The container of this invention not only provides a substitute for conventional metal containers, but provides a container which can be used with greater relative economy in storage and transportation space than cylindrical metallic containers, and further provides a container wherein no metallic parts or surfaces come into contact with the packaged food in a container of this nature.

Further advantages in the construction and use of the container of this invention reside in its moisture and waterproofness, in its high wet strength and in the component fibre board thereof, all of which additionally permit its use with both high and low extremes of temperature and humidity.

Added advantages reside in the details of construction and arrangement of parts which provides a container of a strong and rugged nature and of reinforced construction, which may be shipped flat, readily assembled for use, contents readily frozen and defrosted, and which may be thereafter readily disassembled, cleaned and reused.

Other aspects and uses will be apparent from consideration of the following specification and drawings, wherein,

Fig. 1 is a perspective view of the container of this invention.

Fig. 2 is a section on the line 2-2 of Fig. 1.

Fig. 3 is a section on the line 3-3 of Fig. 1.

Fig. 4 is a perspective view with portions broken away of the body portion of the container shown in Fig. 1 prior to engagement thereto of the locking collar.

Fig. 5 is a perspective view of the locking collar.

Fig. 6 is an enlarged diagrammatic cross-sectional view of one form of the fibrous material of which the container of this invention is composed.

Fig. 7 is a blank development of the container; and,

Fig. 8 is a blank development of the locking collar thereof.

Fig. 9 is a perspective view of a modified form of construction.

Fig. 10 is a blank development of the locking collar employed in the container shown in Fig. 9.

Fig. 11 is a blank development of the body portion of the container shown in Fig. 9.

Referring to Figs. 1 to 8 of the drawings which show the preferred form of invention, there is illustrated a container of rectangular horizontal section and tapered vertical section so that the base or bottom of the container is of lesser area than the top or top opening thereof. The container comprises a body portion generally indicated as 10 and a locking collar portion generally indicated as 11. The body portion as shown by the blank of Fig. 7 comprises a center rectangular portion 12 which forms the base of the container, trapezoidal side walls 13 and 14 and trapezoidal end walls 15 and 16.

Extending from the side walls 13 and 14 are the top closure flaps 17 and 18 respectively, each of which is approximately equal to the width of the carton at the top opening thereof. Extending from the end walls 15 and 16 are the flaps 19 and 20 respectively, each of which is equal to approximately one-half of the length of the top opening of the container. Extending between the adjacent side and end wall portions and joining them are the web pieces 21, 22, 23 and 24, each of these web members being bisected by an oblique line of fold extending from the outer corner thereof to the line of intersection of an adjacent side and end wall member, so as to divide each web into two triangular portions.

It will thus be seen that the novel container of this invention is formed of a single seamless blank, wherein the side and end walls thereof are joined to each other by means of web portions, the bottom, side and end walls and web members being separated from each other by means of score lines, the web portions being additionally divided by means of bisecting score lines. These various score lines are formed on the appropriate respective faces of the blank so as to permit the container to be folded in a manner whereby each of the web portions is doubled on its oblique line of fold, and thereafter two folded triangular web portions are folded against each of the side walls of the container as best illustrated in Fig. 4. It will be particularly noted from Fig. 4 that by reason of the aforesaid seamless blank formation, fluid cannot leak out of the container at any point below the top opening thereof.

The locking collar 11 which is shown in blank development in Fig. 8 comprises the contiguous

trapezoidal side wall portion 25, end wall portion 26, side wall portion 27, end wall portion 28 and seam flap 29, these portions being separated from each other by score lines, the blank being folded and the flap 29 secured against the outer surface of the side wall 25 by suitable means, preferably a plurality of staples 30. It will be evident by reason of the provision of the tapered form of the body portion, and the similarly tapered collar, that the collar may be readily engaged over the bottom of the carton and brought into firm frictional wedged engagement therewith at the top thereof. The collar is further provided with tabs 31 and 32 extending respectively from the upper edges of the side portions 25 and 27, and these portions 31 and 32 may also be provided with a plurality of longitudinally extending score lines such as indicated at 33 so as to permit the tabs 31 and 32 to be bent and extended with facility downwardly between the side walls of the container and their overlapped triangular flaps to thereby hold the body blank 10 in locked position and to cause the collar 11 to be in reinforced wedged and locking engagement therewith.

It will be readily appreciated that this reinforced construction of not only the triangular overlap web members against the side walls of the body, but the additional reinforcement provided by the locking collar is of great assistance and importance in providing a reinforced construction such as is necessary and desirable to guard against undue distension and rupture by reason of the freezing and consequent expansion of contained materials. The over-folded triangular web portions, and particularly aided by the locking collar in wedged engagement with the body of the container permits the use of the overlapped triangular webs as a hand-hold means, that is, the container may be lifted by inserting the fingers of the hand between a side wall and the overlapped triangular web portions. This hand-hold means provision has a tendency to cause the user of the container to always store it properly, that is, with the base 12 in a downward horizontal position. It will also be evident that in forming the body portion of the container no metallic parts of any kind are employed, and the only metallic portions necessary, if so used, are the staples 30 for the locking collar which are well spaced from the contents by at least three thicknesses of the material forming the body 10.

When the container of this invention is used, for example, for the packaging and shipment of broken fluid eggs, the eggs in fluid condition are placed in the assembled container, the side flaps 17 and 18 closed down which incidentally give added reinforced construction to the container by reason of their full width, the end flaps 19 and 20 closed thereover and maintained in position by some suitable form of sealing tape not indicated, and the contents frozen by refrigeration in conventional manner. Frozen eggs so packed are generally sent to egg dryers, and the contents thawed, and as hereinbefore indicated the container may be reused. This re-use may be readily accomplished by withdrawing the tabs 31 and 32 from between the side walls and over-folded triangular portions and the separation of the collar from the body of the container, the container thereafter cleaned and sterilized by, for example, washing with a chlorine solution, and returned to the packer in flat condition with attendant economy in space and materials.

As illustrated diagrammatically in Fig. 6 of the

drawings, the container is composed of a multiply fibrous construction, Fig. 6 illustrating a construction of three plies comprising two outer surface plies 34 and 35 which are essentially of a fibrous nature and an intermediate ply 36 which is essentially of an asphalt impregnated or asphalt enveloped felted fibrous material, the three plies being bonded together to form a unitary composite. It will be understood that although Fig. 6 illustrates diagrammatically a 3-ply construction, 4, 5, or any other like number of plies may be used. For example, if 5 plies are used the essentially fibrous and the asphalt impregnated layers are alternated, with the two outermost plies being essentially fibrous and substantially free of asphalt.

Each of the plies is preferably composed of waterproof kraft or sulfate board paper of a densified nature of high Mullen test and of good water resistance and wet strength. This water resistance and high wet strength quality may be amplified by the incorporation of waterproofing agents in the fibrous sheet or such sizing agents as rosin, or other known synthetic resins and other waterproofing agents or impregnants. Likewise the laminated sheet material may be provided on one or both surfaces with other waterproofing agents, for example, the surface of the blank which is to form the interior of the container may be provided with a wax coating, or with a coating of a non-toxic lacquer or plastic or may be provided with laminations of wax paper, Cellophane, cellulose acetate or the like materials as required or specified for use with specific articles to be packed within the container. It will also be understood that although not shown, liners of the nature indicated need not necessarily be bonded to the blank of the body of the container, but that liners having blanks of similar contour and fold as the body 10 may be employed so as to provide like liners having no line of fluid seepage below the top opening.

By the use of my novel container as aforesaid, it will be found that the freezing time of materials contained therein does not exceed four hours more than the freezing time for metal containers, and by use of the indicated laminated structure composed of a densified sulfate board, one or more intermediate layers of which are impregnated with the bituminous waterproofing agent, that freezing may be accomplished in from 8 to 12 hours quicker than in any other heretofore known paper box of the same Mullen test.

By reason of the hereinbefore set forth reinforced construction there is no bulging of the sides of the package either by freezing or thawing of the contents thereof, and by reason of the great wet strength thereof, the package can be taken from the freezers and placed in water to accelerate the thawing which is of a big advantage to, for example, an egg dryer as hereinbefore indicated, and like wise by reason of its moisture resistant qualities the package can be washed and sterilized with a chlorine solution, dried and reused. Not only does the herein construction provide a container of great strength, but it increases the capacity of the freezing space 25 per cent over the room space required for cylindrical metal cans, and similarly this brings a great economy over the use of such cans in refrigerator cars and other shipping and storing places.

Figs. 9 to 11 illustrate a modified form of container construction, all parts of which are

similar to that of the construction shown in Figs. 1 to 8 and the parts thereof are indicated by like prime reference numerals, the only difference in this form of construction being in that the container is of full rectangular section in all three dimensions thereof, and has the advantage of full utilization of storage and shipment space.

I claim as my invention:

1. The combination with a fibre board container body formed of a unitary seamless blank and comprising a bottom, side walls, end walls, web members connecting the full length of adjacent edges of said walls and doubled along a diagonal line and folded against the adjacent side walls, and top closure flaps extending from said walls, of a separable slidably engageable, endless, relatively short collar embracing said body adjacent the top thereof, said collar comprising integral flaps extending from the upper edge of the sides thereof and folded downwardly to extend between the side walls of the container body and the overfolded wall connecting webs.

2. The combination with a fibre board container body of tapered vertical section formed of a unitary seamless blank and comprising a bottom, side walls, end walls, web members connecting the full length of adjacent edges of said walls and doubled along a diagonal line and folded against adjacent side walls, and top closure flaps extending from said walls, of a relatively short, endless, separable tapered fibre board collar in wedged embracing engagement with said body portion adjacent the top thereof and maintaining it in formed condition thereby, said collar comprising integral flaps extending from the upper edge of the sides thereof and folded downwardly to extend between the side

walls of the container body and their overfolded wall connecting webs and thereby holding the container body in locked position and said collar in reinforced wedged and locking engagement therewith.

3. A reinforced, leakproof, waterproof, moisture and weather resistant paper board container adapted for the packaging of liquid, semi-liquid and semi-solid materials including foods and frozen food products comprising a container body portion tapering in vertical section towards the base thereof and formed of a unitary seamless blank providing a bottom, side walls, end walls, web members connecting the full length of adjacent edges of said walls and doubled along a diagonal line and folded against the adjacent side walls and top closure flaps extending from said walls, and a separable slidably engaged collar in wedged embracing engagement with said body portion adjacent the top thereof and extending from approximately the upper defining edge of the container to approximately the intersection of the diagonal lines of said folded web members and maintaining it in formed position thereby and providing hand-hold means therewith, said collar having integral flaps extending from the upper edge of the sides thereof and folded downwardly to extend between the side walls of the container body and their overfolded wall connecting webs and thereby holding the container body in locked position and said collar in reinforced wedged and locking engagement therewith, said container being composed of stiff, dense, multi-ply laminated fibre-board of high wet strength and at least one intermediate ply thereof being impregnated with an asphaltic material.

WALTER H. NEWTON.