

Aug. 7, 1945.

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2,381,508

SHIPPING CONTAINER

Filed Sept. 24, 1943

2 Sheets-Sheet 1

Fig. 1.

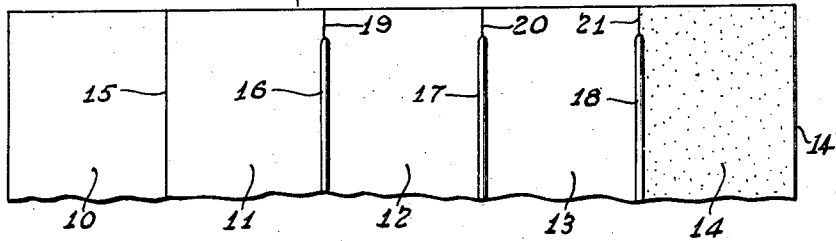
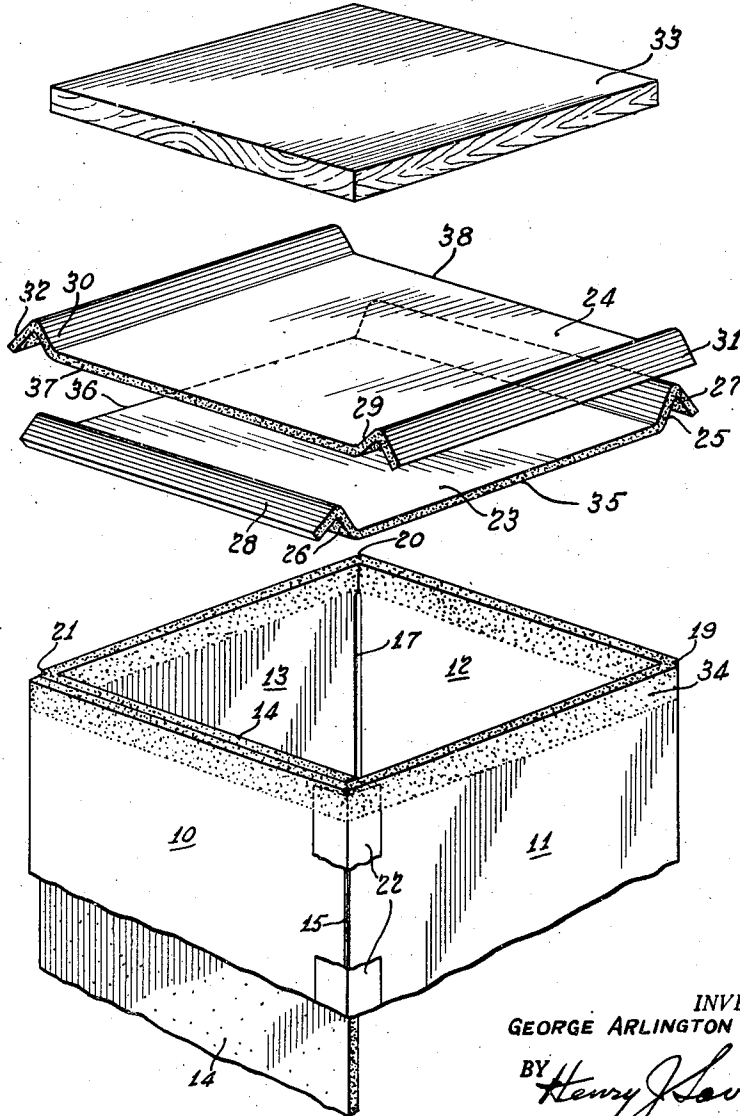


Fig. 2.



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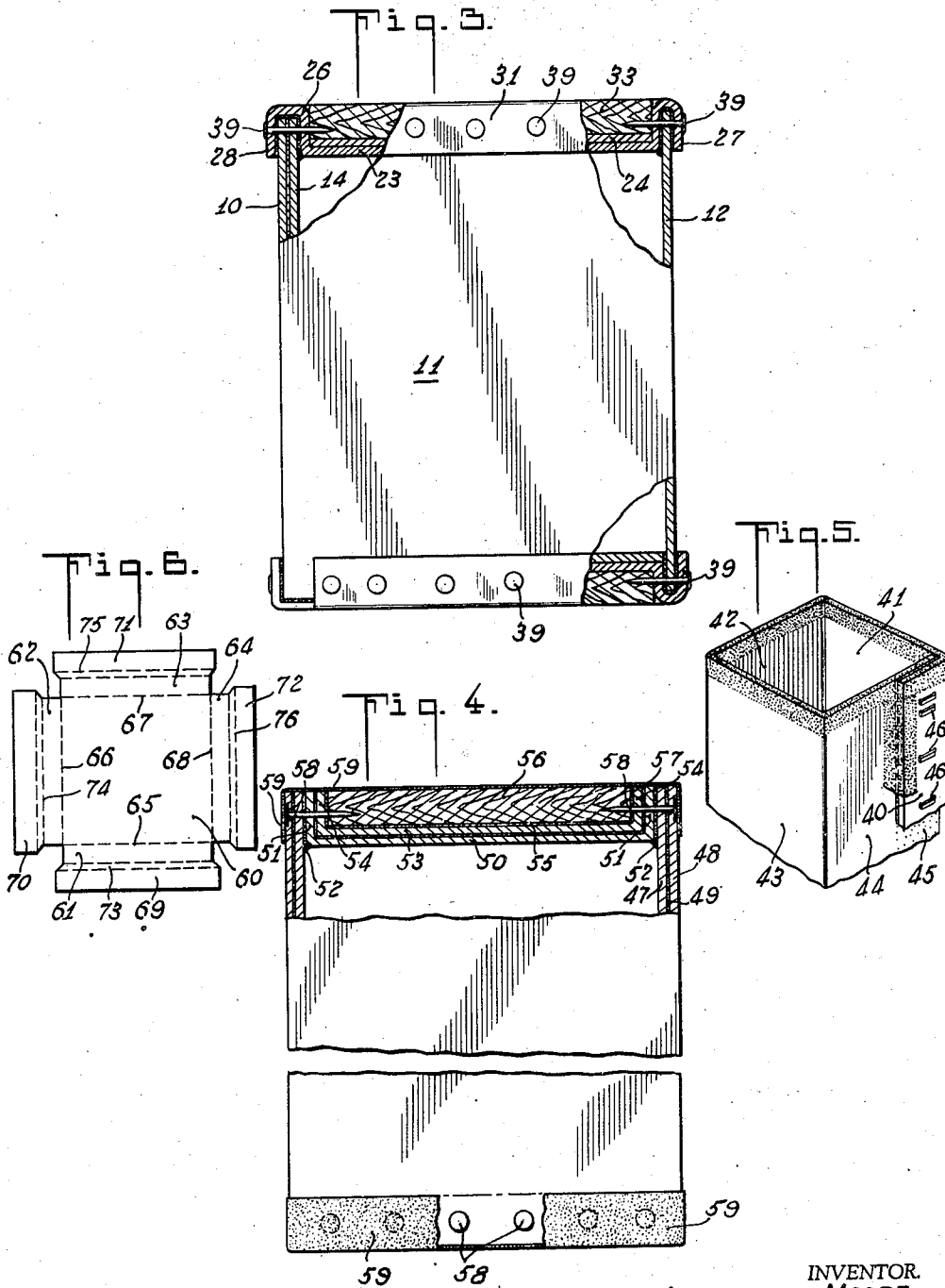
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2 Sheets-Sheet 2



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2,381,508

SHIPPING CONTAINER

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a corporation of New Jersey

Application September 24, 1943, Serial No. 503,717

2 Claims. (Cl. 229—43)

My invention pertains to shipping containers and has among its objects to produce a container made from fibre board or similar material that is cheap and easy to manufacture, is strong and durable yet light in weight, and is waterproof which adapts it for use in over-seas shipping and for packaging articles that must be protected against atmospheric conditions and changes.

A principal object of my invention is to provide means whereby all engaging surfaces constituting the container closures are drawn and held into highly compressed relationship to effect water repellent seams.

The above and other objects and advantages are attained by my invention, one embodiment of which I have illustrated in the accompanying drawings.

Fig. 1 is a plan view of one end of a blank from which the body or shell of the container may be formed.

Fig. 2 is an "exploded" view, in perspective, showing one end of the body and the three-piece head or end closure.

Fig. 3 is a front elevation, partly broken away, of a preferred form of the container.

Fig. 4 is a similar view of a modified form.

Fig. 5 is a perspective view of one end of a modified form of body or shell.

Fig. 6 shows a single-piece cover adapted to be used in a modified form of head or end closure.

Fig. 1 shows one end of a single-piece blank from which the shell or body of the container of Fig. 3 is fabricated. Only one end of the blank is shown, because the two ends are identical. The blank comprises five panels or sides 10, 11, 12, 13, 14 defined by score lines 15, 16, 17, 18, along which the material is folded to form the container body. The width of the panels equals the width of the respective sides of the container that they are to form, except that panel 10, which overlaps panel 14 so as to provide a side of double thickness, may be of sufficient width to overlap panel 14 only far enough to secure a firm bond or joint therewith, as shown for example in Fig. 5. The score lines 15, 16, 17, 18, will vary according to the material being used and the character of the container to be made. When laminated waterproof board, such for example as Government specification V-2-S, or equivalent, is used, a complete score without cuts is preferable, but with other board materials I prefer to make the line 15 a cut-score and the lines 16, 17, 18 rule-scores except for a short distance at each end where they are cut-scored as at 19, 20, 21. The cut-scores 15, 19, 20, 21, enable the material

to be bent so as to form sharper, squarer folds or corners than would be the case if the rule-scores were continued to the end. The square corners or edges make it easier to obtain a tight seal with the heads or end closures. However, there are many purposes that can be served by rule-scoring the entire blank when using such material as V board.

When the container body is to be formed as shown in the lower part of Fig. 2, the edge 14' which forms an outside or exposed edge in the container is coated with a water-repellent compound and the outer surface of panel 14 is coated with a water-repellent adhesive such as well-known waterproof glues, or other water repellent adhesives. The blank is next folded on the score lines and the panel 10 pressed firmly against the adhesive coated side of panel 14 until a secure bond is obtained. Stitching or stapling can also be applied to strengthen the bond. The corner where some of the fibers are exposed by the cut-score 15 may be protected and reinforced by a waterproof tape 22.

The heads or end closures preferably are formed from three parts, as shown in Fig. 2. The inner seal is made from two covers 23, 24 each of which has a flat panel adapted to fit snugly within an end of the shell, and two sets of flanges fitting over and secured to the inside and outside of the top of the shell. The grain of the board should run at right angles in the respective covers and the entire covers may be dipped in water repellent materials such as asphaltum especially compounded to avoid brittleness at low temperatures, waxes and other suitable materials.

The inner cover 23 has a flat panel which has a snug fit within the four walls of the shell and at two opposite sides has inner or upturned flanges 25, 26, which are sealed to the inside of two opposite panels, as 12, 14, and limit the depth to which the cover enters the shell. Outer or downturned flanges 27, 28 are secured to the outside of the panels 10, 12.

The outer cover 24 has a flat panel with its edges fitting snugly against the flanges 25, 26 and has upturned flanges 29, 30, adapted to be sealed to the inside of the side walls 11, 13. Downturned flanges 31, 32 are secured against the outside of the walls 11, 13.

A wooden filler 33 has a close fit within the flanges 25, 26 and 29, 30. The thickness of this filler is shown as substantially equal to the height of the flanges 29, 30 so that it lies sub-

stantially flush with the end of the container as in Fig. 3.

The two heads or end closures are identical, one being applied before filling the container and the other after.

When the shell or body has been formed, as in Fig. 2, the end to be closed is coated inside and out with waterproof sealing compound 34, which may be asphaltum, wax or other suitable substance and be applied by dipping, brushing, or otherwise. The edges 35, 36 and under faces of flanges 25, 26, and 27, 28, of the cover 23 are similarly coated. The cover 23 is then pressed down into the shell to the full depth of the flanges 25, 26. The edges 37, 38 of cover 24 and lower faces of flanges 29, 30 and 31, 32 are similarly coated and this cover forced down for the full depth of the flanges 29, 30. The edges 35, 36 form a close seal with the sides 11, 13 and the coated edges 37, 38 form a close seal with the inside faces of flanges 25, 26. The panel of cover 24 rests on the panel of cover 23 and the two may be bound together by a coating of asphaltum, wax, or other adhesive. When the two covers are in place the filler 33 is dipped or coated with asphaltum creosote, or other waterproof material and inserted between flanges 29, 30 and 25, 26 with which it has a snug fit. This presses these flanges firmly into contact with the coated tops of the side walls, 11, 12, 13, 14. A waterproof seal is provided when the nails 39, Fig. 3, which extend through the side walls 10, 11, 12, 13, 14 and into the filler 33, draw the outside flanges 27, 28 and 31, 32 down into firm engagement with the side walls. The nails 39 may be cement coated or dipped in a solution of mono-ammonium phosphate to increase their adhesion to the filler 33.

The nails 39 and filler 33 constitute binding means and draw the flanges 26, 28 into compressed sealing relation with the inside and outside of the coated top edges of the panels 10, 14, and the inside of flange 26 against the filler 33. Similarly, the flanges 25, 27 grip the coated top edge of panel 12. The flanges 29, 31 of the cover 24 grip the top edge of panel 11 and the flanges 30, 32 grip the top edge of panel 13. The inside faces of flanges 25, 26, 29, 30 are compressed firmly against the filler 33. Thus all of the sealing surfaces are drawn down and compressed into tight sealing engagement.

When one end has been closed, the case is filled and the other head secured in place in the same manner.

In Fig. 5, I show a shell or body formed from a slightly modified blank. The panel 40, corresponding to the panel 10 of Fig. 1, is short so as to form only a sealing flap and is secured to the panel 44 by waterproof adhesive 45 and staples 46. The other three sides 41, 42, 43 are formed on the blank by score lines which may be ruled scores throughout their length or have cut-score ends, as in Fig. 1. This shell may be closed at the ends by the closure shown in Fig. 2 with such slight adaptations as may be required. The outer flange of the cover overlying the panel 40, 44 may be slit at the edge of the overlap so that nails 39 will draw the flange down tight into this junction.

Fig. 4 shows a further modification in which the body is made from two thicknesses 47, 48 of fiber board united by a layer 49 of waterproof material such as asphaltum, wax, or the like. Each end is closed by a head as shown at the

top of the figure. The inner cover 50 has upstanding flanges 51 which are coated with asphaltum, wax, or other suitable waterproof adhesive before being set in place. This adhesive forms a slight fillet 52 at the juncture of the flanges and sides which assures a tight seal. The outer cover 53 has upturned flanges 54 and is joined to the inner cover by adhesive 55. The wooden filler 56 is dipped or coated with asphaltum or other compounds 57 and fits snugly within the flanges 54. Nails 58 secure the head to the body and draw all the joints and seals firmly together. The entire end when assembled may be dipped or sealed with asphaltum or other sealing material as shown at 59.

In Fig. 6 I show a single piece cover that may be used with the shells of Figs. 3 and 5 instead of the two covers 23, 24 shown in Fig. 2. This cover has a flat panel 60 of a size to fit closely within the body. Four inner flanges 61, 62, 63, 64, are joined to the panel along score lines 65, 66, 67, 68. The panel fits snugly within the body and the flanges are coated with water-proof materials and secured within the four side panels. Four outside flanges 69, 70, 71, 72 are joined to the inner flanges along score lines 73, 74, 75, 76, these outside flanges may be slightly longer than the inner flanges so that the ends of adjacent flanges will meet at the corners of the case when in closed position.

All exposed edges of the container may be coated with water-proof coating as shown at 77 in Fig. 5, where a coating is applied to the edges of the short panel or flap 40. The stitching staples 46 also may be coated in any suitable manner as by dipping the entire corner into a suitable compound.

It will thus be seen that I have provided a novel container that is strong, durable, and of low cost, yet moisture-resistant. In fact, filled containers will withstand immersion in water for considerable periods of time without leakage or damage to their contents. They are therefore, admirably adapted to over-seas shipments.

For over-seas shipments, especially of military supplies, where the containers are exposed to salt water or high humidity, or may be immersed in salt water in case of cached supplies, the entire outer surface may be coated by spraying, immersion or otherwise with a plastic cement or other coating that is impervious to sea water and resistant to its penetration for long periods of time.

While I have illustrated only containers that are substantially square in cross-section, the invention is not limited thereto, but may be embodied in containers of any cross-sectional shape, as rectangular or circular.

I have shown and described my improved container as having identical top and bottom closures. However, only one end, or the end finally sealed may be made according to the present disclosure, the other end being closed in any other suitable manner.

From the foregoing disclosure, many other modifications and adaptations of my invention will be suggested to those skilled in the art, and I claim all such that may come within the scope or intent of my claims.

What I claim is:

1. A container having an open ended rectangular body formed from a single blank of fibrous material scored to provide five panels two of which overlap to form one side wall of double thickness at least in part, an inner cover made

from fibrous material and having a rectangular panel fitting closely in the body and set in from the end thereof, said cover having inner flanges contacting two opposite inner walls and extending to the edges thereof and outer flanges joined to the edges of the inner flanges and lying against the outside of the two opposite walls, an outer cover made from fibrous material and having a rectangular panel fitting closely in the body and overlying the inner cover, said outer cover having two inner flanges disposed against the inside of the other two opposite walls and two outer flanges lying against the outside of said other two walls, waterproof sealing compound coating and sealing the contacting edges and surfaces of said body and covers, a filler of a thickness substantially equal to the height of said inner flanges and fitting therebetween, and means for securing said flanges, body and filler together to close the end of the body.

2. A container having an open ended rectangular body, closures for both ends of the body,

each closure including two overlying rectangular panels extending across the body and each having upturned flanges on two opposite edges engaging in snug-fitting relationship within an end of the body and two downturned flanges secured to the top edges of the upturned flanges and engaging on the outside of an end of the body, the unflanged edges of the underlying panel engaging the sides of the body that are engaged by the upturned flanges of the overlying panel, and the unflanged edges of the overlying panel engaging the inside surface of the upstanding flanges on the underlying panel, a rectangular filler fitting within said upturned flanges and pressing them against the inside of the body, the engaging surfaces and edges of said filler, closures and body having a coating of water repellent compound, and binding means for drawing said filler, upturned and downturned flanges, edges of the panels and inner and outer surfaces of the body into compressed sealing relationship.

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