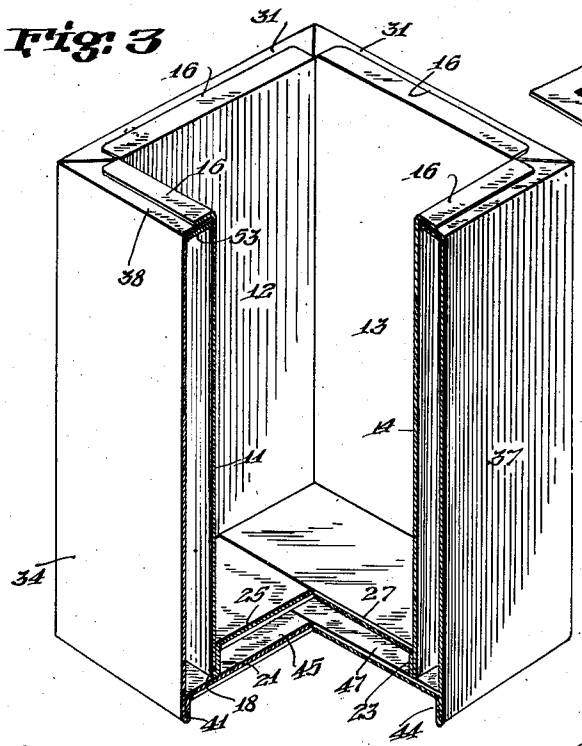
July 11, 1939. P. ZALKIND 2,165,327

SET-UP INSULATION BOX

Filed April 20, 1936

Fig: 3



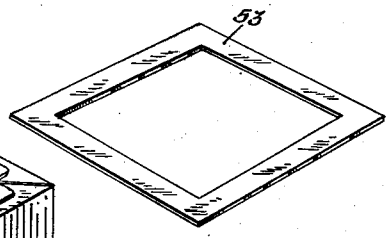


Fig: 6

Fig: 4

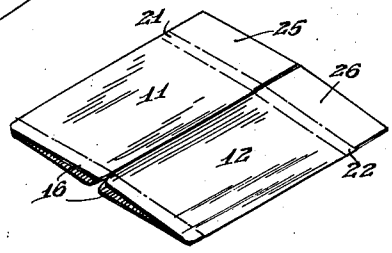


Fig: 1

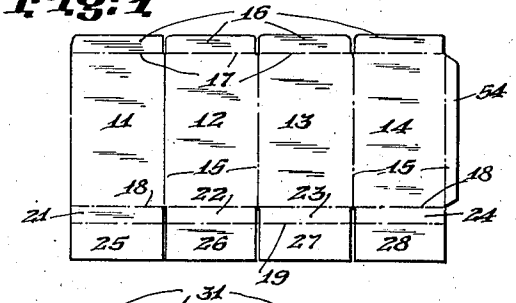
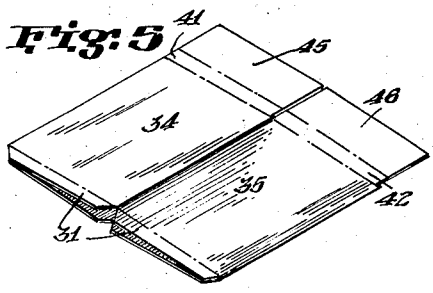


Fig: 5



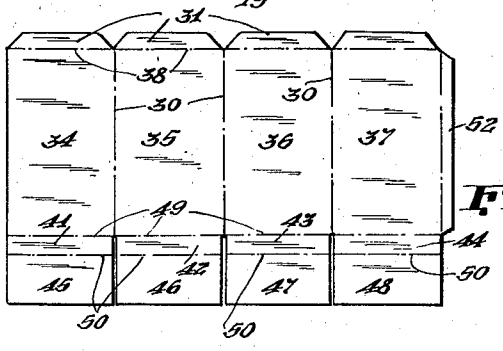


Fig: 2

INVENTOR.

Philip Zalkind

BY

Ostrolenk, Greene Mason

ATTORNEY.

Patented July 11, 1939

2,165,327

UNITED STATES PATENT OFFICE

2,165,327

SET-UP INSULATION BOX

Philip Zalkind, New York, N. Y.

Application April 20, 1936, Serial No. 75,317

6 Claims. (Cl. 229—14)

My invention relates to novel heat insulated containers, and more particularly relates to containers formed from collapsible tubes, which when integrated to form the container produce a unified rigid structure.

My invention comprises a container formed from blanks of sheet material such as folding box board, corrugated board, and the like, cut, scored, folded and united in a manner to provide a casing having hollow walls. These hollow walls provide "dead" air spaces which effectively insulate the container against the passage of heat. Thus with my construction a container is provided, the parts of which may be folded or collapsed and be delivered and stored in this condition. At the same time the user may set up the parts into a rigid, integrated casing, which is at the same time an efficient heat insulator. Such a container may be used for the storage of either hot or cold material, which are to be maintained either hot or cold, as the case may be. Thus my container is adapted to the shipment of ice-cream and the like, and more particularly to the packing of ice-cream for the retail trade where the container is delivered to the packer in knock down condition, and is not expected to be returned by the consumer. However, I do not limit the use of my container to any particular purpose, as it may be used wherever heat insulating properties are desired in containers. My container is inexpensive to construct. It may be shipped to the packer in knock down condition and so stored until ready for use. It therefore requires comparatively little space for storing and the cost of shipment will be relatively low. Moreover, where additional heat insulation is required, my container is adapted to receive filler members which provide such additional insulation. These members may be of any well known type, but, where such additional insulation is desirable, I prefer to use one of the types of insulating filler disclosed in my copending applications filed coincidently with this application and entitled Collapsible filler, Serial No. 75,314, and Insulation sheets, Serial No. 75,316.

The objects of my invention are thus to provide a container that may be shipped in knock down condition, that provides insulation against the passage of heat, that is inexpensive to construct; and that is adapted to receive an insulating filler. In my copending application entitled Collapsible insulating casing, Serial No. 75,315 and filed coincidently with this application I have disclosed a similar insulating container incorporating certain of the features of the present invention, but differing from the present invention in that my copending application the insulating container may be readily recollapsed for reshipment after use. There are other objects of my present invention which will be apparent from the following detailed description in connection with the drawing, in which

Figure 1 is a developed view of a blank for forming the inner shell of my novel container.

Figure 2 is a developed view of a blank for forming the outer shell of my container.

Figure 3 is a perspective view, partly in section, showing my container with the inner shell inserted into the outer shell in automatic spaced relation to form a container having insulating "dead" air spaces.

Figure 4 is a perspective view showing the inner shell made from the blank of Figure 1 in a collapsed condition.

Figure 5 is a perspective view showing the outer shell made from the blank of Figure 2 in a collapsed condition.

Figure 6 is a perspective view showing a frame for reinforcing the open edge of the shell of Figure 3.

In the blank shown in Figure 1, four sections 11, 12, 13 and 14 separated by the score lines 15, form the sides of the inner shell of the container. Tabs 16 extending from the upper portions of the sections 11 to 14 are formed by the score lines 17 and are adapted, as shown in Figure 3, to be turned back at right angles to the plane of their respective sections 11 to 14. At the bottom of the sections 11 to 14, two parallel score lines 18 and 19 form the sections 21 to 24 and 25 to 28. Portions 21 to 24 are adapted to be turned about the score lines 18 into a reentrant position so as to lie parallel to, and in contact with, sections 11 to 14 respectively, as illustrated in Figure 3; and sections 25 to 28 are adapted to turn on the score lines 19 to a position at right angles to the plane of the side walls 11 to 14 forming the bottom of the shell. The blank of Figure 1 is folded on the score lines 15 between sections 12 and 13. The free edge of section 14 is thus brought into contact with the free edge of section 11, and the two free edges may be united with each other through the agency of the flap 54 integral with section 14. This flap 54 may be attached to section 11 in any suitable manner, such as gluing, stitching, or stapling. The blank is thus formed into a collapsed tube, as shown in Figure 4.

The construction of the blank for the outer shell, as shown in Figure 2, is similar in many

respects to the blank of Figure 1. It comprises the four main sections 34, 35, 36 and 37 separated from each other by the parallel score lines 30. Tabs 31 extending from the upper portions of the sections 34 to 37 are formed by the score lines 38, and are adapted, as shown in Figure 3, to be turned back at right angles to the plane of their respective sections 34 to 37. At the bottom of the sections 34 to 37, two parallel score lines 49 and 50 form the sections 41 to 44 and 45 to 48. Portions 41 to 44 are adapted to be turned about the score lines 49 into a re-entrant position so as to be parallel to and in contact with sections 34 to 37 respectively, as shown in Figure 3; and sections 45 to 48 are adapted to turn on the score lines 50 to a position at right angles to the plane of the side walls 34 to 37, forming the bottom of the shell. The blank of Figure 2 is folded on the score lines 30 between sections 35 and 36. The free edge of section 37 is thus brought into contact with the free edge of section 34, and the two free edges may be united with each other through the agency of the flap 52 attached to the section 37. This flap 52 may be glued to the outer face of section 34 in any well known manner. The blank is thus formed into a collapsed tube shown in Figure 5.

In setting up the collapsed inner and outer tubes to form a casing, each of the tubes is expanded on their score lines until the sides are at right angles to each other, and the bottom closure of each is formed by bending the various bottom flaps in the manner for which they are adapted. Thus, on the inner shell the portions 21 to 24 are bent into contact with the sections 11 to 14 respectively, and the portions 25 to 28 are then bent until they are perpendicular to the side walls 11 to 14. I prefer that portions 21 to 24 be provided with a remoistening glue surface in order that they be firmly attached to their respective side walls. Also, I prefer that portions 26 and 28 also be provided with remoistening glue in order that they may be securely united with portions 25 and 27 which are first turned in. Similarly portions 41 to 43 of the outer shell are turned against their respective side members 34 to 37; and the bottom closure then formed by turning portions 45 to 48 at right angles to the expanded side walls. These members may also be secured with remoistening glue in a manner similar to that explained above in connection with the inner shell. The flaps 31 at the top of the outer shell are turned inwardly to be at right angles to the side walls 34 to 37; and the flaps 16 of the inner shell are turned outwardly until they are at right angles to the side walls 11 to 14.

In order to reinforce the open end of the shell, a frame-like member, Figure 6, having outer and inner dimensions corresponding to those formed by the tabs 31 may be inserted in the tube formed by the sections 34 to 37 to a point just below the score lines 38. This frame may be secured to the under portions of the flange formed by the sections 31 by any suitable means, as, for instance, a remoistening gummed surface.

Thereafter the inner tube which has previously been assembled, as described above, is inserted into the outer shell, as shown in Figure 3. This inner shell is so proportioned that when it is inserted within the outer shell its side walls will slide in close contact with the inturned flange on the outer shell, formed by the top flap member 31 and the frame 53. Moreover, the length of the inner shell is so proportioned relative to the length of the outer shell, that when the peripheral flange at the bottom of the inner shell (formed by the portions 21 to 24 with their adjoining section of side walls) rests upon the bottom closure member of the outer shell, then the outstanding flange formed by the flaps 16 on the top of the inner shell come in face to face contact with the inturned flange formed by flaps 31 at the top of the outer shell. These face to face portions may be secured to each other in any suitable manner, as, for instance, the application of a suitable pregummed surface to the top of the flange formed by flaps 31.

The relative width of the sides of the inner and outer shell, together with the width of the tabs 31 on the outer shell, determine the spacing between the inner and outer shell, and the thickness of the "dead" air space provided around the sides of the container for insulating purposes. Similarly the width of the portions 21 to 24 on the inner shell determines the thickness of the "dead" air space provided at the bottom of the container for insulating purposes. These air spaces may have any desired thickness depending upon the particular application. In general it will not be less than ¼", nor more than 3". I have found that where no additional insulating filler is used with my casing, a "dead" air space about ½" in thickness provides an efficient heat insulation.

It will be seen that with the construction illustrated a single "dead" air space is formed as insulation all round the container. Where more effective insulation is desired a plurality of "dead" air spaces, in series with each other, may be provided by the insertion of a suitable filler between the two shells, which filler will divide the air space provided between the two shells into a plurality of parallel air spaces. Such filler members are fully described in my aforementioned copending applications entitled Collapsible filler, Serial No. 75,314, and Insulation sheets, Serial No. 75,316, and are also illustrated in my aforementioned copending application entitled Collapsible insulating casing, Serial No. 75,315.

The open end of the casing may be closed by means of a suitable hollow closure member, which like the main container itself, is provided with a "dead" air space, so as to provide a suitable insulation against the passage of heat through the open end of the container. This closure member may be a plug type panel which may be sprung into the open end of the casing; and may be constructed in a manner similar to certain of the various modified forms of plug type panels shown in my copending application, Serial Number 45,708 filed October 19, 1935.

One form of hollow plug closure member suitable for use with my novel container is shown in detail in my aforementioned copending application, Serial No. 45,708, filed October 19, 1935.

It will be understood that the particular form of container described is shown by way of illustration only, and that many modifications may be made without departing from the scope and spirit of my invention as expressed in the attached claims. Now having described my invention in a manner that it may be readily understood by one skilled in the art, I claim:

1. A rigid insulating casing of fibrous sheet material comprising an inner shell and outer shell; said inner shell having side walls, a bottom wall, a downwardly depending flange at the junction of said side walls and said bottom wall, and an outstanding flange at the upper extremity of the side walls; said outer shell having side walls, a bottom wall, and an inwardly projecting flange at the upper extremity of the side walls; said inner

and outer shell being united with each other to form said insulating casing; said shells being united through the top outstanding flanges of said inner shell and the top inwardly projecting flanges of said outer shell, the latter also being secured to a frame of sheet material fitting around said inner shell and within said outer shell.

2. A rigid insulated casing comprising an inner shell and an outer shell; said inner shell being formed from a blank of sheet material having side walls defined by score lines, flaps at one end of said blank for forming outstanding flanges on said inner shell, and flaps at the other end of said blank for forming a raised bottom panel for said inner shell; said outer shell being formed from a blank of sheet material having side walls defined by score lines, flaps at one end of said blank for forming inwardly projecting flanges, and flaps at the other end of said blank for forming a raised bottom panel for said outer shell; said inner shell fitting within said outer shell and being secured thereto in fixed spaced relationship to provide air spaces around said inner shell.

3. A rigid insulating casing of fibrous sheet material comprising an inner shell and an outer shell; said inner shell having side walls, a bottom wall, a downwardly depending flange at the junction of said side walls and said bottom wall; said outer shell having side walls and bottom wall, a downwardly depending flange at the junction of said side and bottom walls, said last-mentioned flange providing a basal support for said outer shell and supporting the bottom of said casing.

4. A rigid insulating casing of fibrous sheet material comprising an inner shell and an outer shell; said inner shell having side walls, a bottom wall, a flange at the junction of said side walls and said bottom wall; said outer shell having side walls and bottom wall, a flange at the junction of said side and bottom walls, said last-mentioned flange providing a basal support for said outer shell and supporting the bottom of said casing.

5. An insulating casing of fibrous sheet material comprising an inner shell and an outer shell, each of said shells being provided with score lines for forming casings from a collapsed blank, each of the shells when in assembled position having side walls and bottom wall and means for maintaining said side and bottom walls of said inner shell in spaced relation with respect to said side and bottom walls of said outer shell, said means comprising flanges formed from score lines in said blanks.

6. An insulating casing of fibrous sheet material comprising an inner shell and an outer shell, each of said shells being provided with score lines for forming casings from a collapsed blank, each of the shells when in assembled position having side walls and bottom wall and means for maintaining said side and bottom walls of said inner shell in spaced relation with respect to said side and bottom walls of said outer shell, said means comprising flanges formed in said inner shell from score lines in the inner shell blank.

PHILIP ZALKIND.