United States Patent

Heiligman

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[54] METHOD OF PACKING FLEXIBLE PACKAGES IN A CYLINDRICAL CONTAINER

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[73] Assignee: **The United States of America as represented by the Secretary of the Army**

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[52] **U.S. Cl.** ..... **99/174**, 206/65 R, 53/21 FW, 99/171 PP

[51] **Int. Cl.** **B65b 25/06**

[58] **Field of Search** ..... 99/174, 171 R, 171 PP; 206/46 F, 65 R, 57 R, 65 K; 53/21 R, 21 FW

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[57] **ABSTRACT**

A method of packing a plurality of substantially flat elongated flexible packages in a rigid cylindrical container where the length of the packages exceeds the interior height of the container comprising folding the flexible packages transversely to a length which is less than the interior height of the container and providing a folded end portion which is less than half the interior height of the container, stacking the folded packages in pairs with their folded end portions in the same plane, placing the stacked pairs into the container and filling the remaining space between the container wall and the stacked pairs with a single flexible package folded at least twice transversely and placed sidewise in the container. The method is particularly useful in packing five 1-pound packages of sliced bacon in a standard size (No. 10) tin plate container.

4 Claims, 7 Drawing Figures

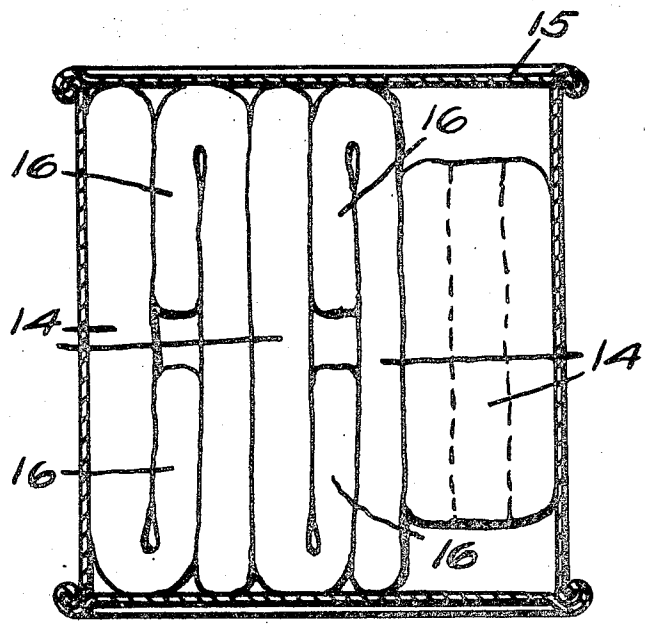


Fig. 1.

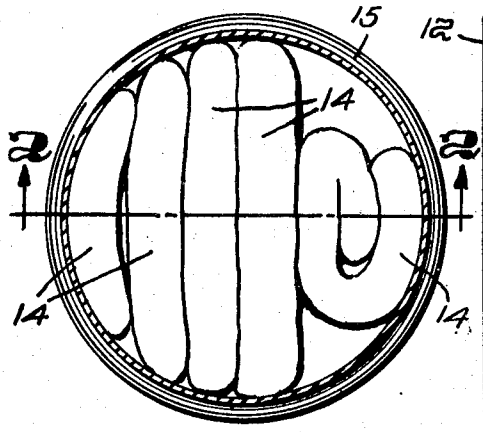


Fig. 2.

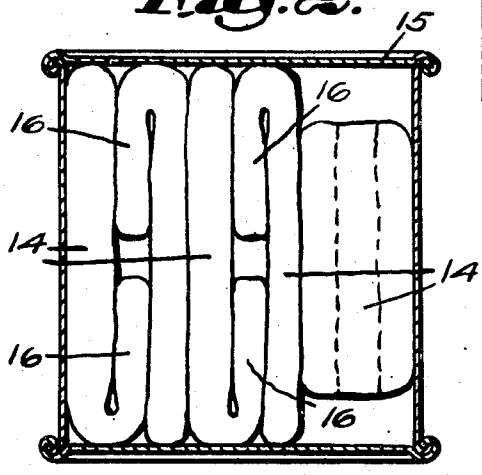


Fig. 3.

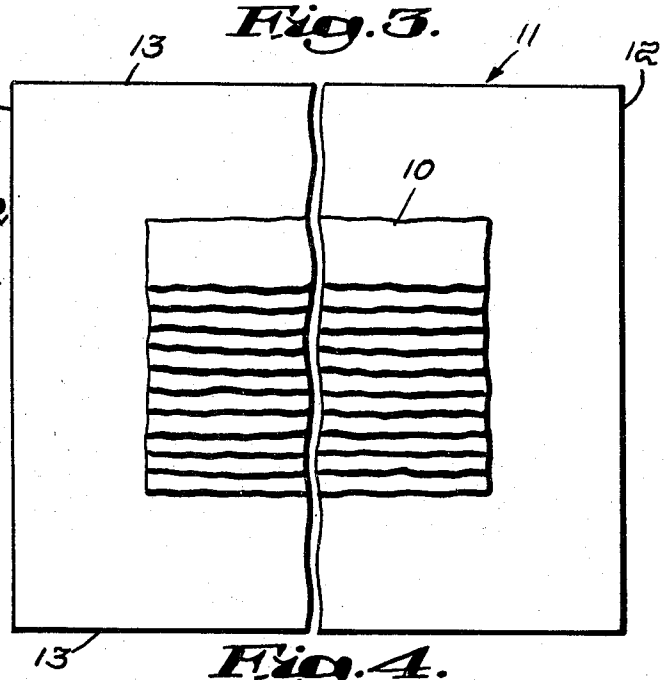


Fig. 4.

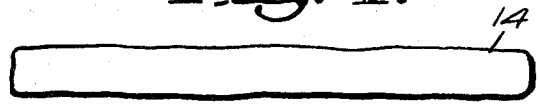


Fig. 5.

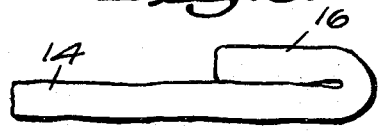


Fig. 6.

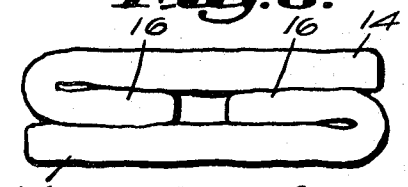
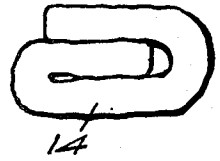


Fig. 7.



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METHOD OF PACKING FLEXIBLE PACKAGES IN A CYLINDRICAL CONTAINER

This invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

BACKGROUND OF THE INVENTION

This invention relates to a method of packing a plurality of flexible packages in a rigid cylindrical container and, more particularly, to a method of folding and packing elongated flexible packages in such a container.

Sliced bacon is normally marketed in 1-pound units of shingled slices approximately 10 inches long packed in flexible packaging material and kept under refrigeration. With the development of processes for the treatment of bacon with high-intensity ionizing radiation, it became possible to store bacon at room temperatures for extended periods of time without spoilage. However, after radiation treatment, the treated bacon must be protected from subsequent exposure to spoilage bacteria and micro-organisms. The well-known tin plate can is most suitable for this purpose from the standpoint of cost, availability and protection, but problems have been encountered in packing the bacon in standard cylindrical cans.

Bacon has been packed in 1-pound cans with some success by rolling the shingled bacon slices into a cylinder and placing in the can. Such small cans are most inefficient and uneconomical for institutional or military use, but efforts to pack shingled 10-inch slices of bacon in larger cans such as the No. 10 (607×700) can commonly used in institutional packs were unsuccessful due to excessive breaking, splitting and distortion of the bacon slices. This damage occurs during folding or rolling of the shingled bacon slices, insertion into the can and removal from the can without a suitable method to follow.

Obviously, specially sized containers would avoid these problems as would specially sized packages, for example, 7-inch long sliced bacon. However, either of these approaches would increase the cost of the final pack since the containers or the packages would have to be specially produced and handled just for this purpose.

SUMMARY OF THE INVENTION

The present invention comprises a method of packing a number of elongated flat flexible packages in a rigid cylindrical container which has an interior height less than the length of the flexible packages and equal to or greater than the width thereof and a diameter greater than the width of the flexible packages. The method comprises folding a predetermined number of such flexible packages transversely to a length which is less than the interior height of the container and which provides a folded end portion which is not more than one-half the interior height of the container, stacking the folded packages in pairs with the folded end portions of each pair lying in the same plane, placing a predetermined number of stacked pairs lengthwise in the container and placing one more flexible package which has been folded transversely at least twice sidewise between the stacked pairs and the interior wall of the container. This method provides for a minimum amount of folding of the flexible packages and maximum ease of insertion and removal from the container while permitting the container to be efficiently and snugly packed. Another object is to provide a method which provides for the packing of standard commercial size packages such as 1-pound packages of sliced bacon in a standard size can.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top view of a container packed with five flexible packages in accordance with the invention with the cover removed.

FIG. 2 is a side view of the container shown in FIG. 1 with the container being shown in section along line 2—2 of FIG. 1. The flexible packages are shown in slightly distorted form for purposes of clarity.

FIG. 3 is a plan view of a quantity of shingled bacon on a sheet of flexible wrapped material ready for wrapping.

FIG. 4 is a side view of a package of bacon after wrapping.

FIG. 5 is a side view of the package in FIG. 4 folded once in accordance with the invention.

FIG. 6 is a side view of a pair of packages folded and stacked in accordance with the invention.

FIG. 7 is a side view of a package folded twice in accordance with the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The standard commercial 1-pound package of sliced, uncooked bacon comprises 10 to 10½ inches long slices shingled together to form a unit of about about 10 to 10½ inches in length about 5 inches in width and about ⅜ to ½ inch thick. In accordance with the invention, five of such packages are packed in a standard No. 10 can which is 6 7/16 inches in diameter and 7 inches in height.

The 1-pound units of shingled sliced bacon are individually wrapped in food grade parchment paper. The bacon **10** is placed on the paper **11** as shown in FIG. 3, and ends **12** of the paper are folded over the bacon. The sides **13** of the paper are then folded over the bacon to form a package **14** as shown in FIG. 4. Four of the packages **14** are then folded once transversely as shown in FIG. **5** to a folded length which is slightly less than the interior height of the can **15**, i.e., 7 inches.

The folded packages **14**, stacked in pairs with the folded ends **16** lying in the same plane as shown in FIG. **6** and the two stacked pairs are placed lengthwise in the open topped can **15** as shown in FIGS. **1** and **2**.

A fifth package **14** is folded twice transversely to a folded length slightly less than about one-half of its unfolded length as shown in FIG. 7 and then placed sidewise in the can **15** between the interior wall of the can and the already placed stacked pairs of packages as shown in FIGS. **1** and **2**. The can **15** is then covered and sealed by conventional methods.

The very limited amount of folding required by this method and the ease with which the bacon packages are placed in the can and subsequently removed result in the elimination of practically all breaking, splitting and distortion of bacon packed in this manner. At the same time, the method permits the use of a standard size can and results in a relatively small amount of unused space within the packed can. The double folding of the last package and its sidewise placement in the can fills the remaining space and provides a snug pack which prevents movement of the bacon within the can during shipment and handling.

It will be apparent that the advantages of this method can be attained with a variety elongated flexible packages and container sizes. Generally, the width of the flexible packages must not be more than the inside diameter of the container and not more than the interior height of the container. In other words, the diameter and height of the container must be equal to or greater than the width of the packages. The length of the flexible packages is less critical than the width. Thus, while the bacon packages in the embodiment described were folded only once prior to stacking in pairs, longer packages may be folded two, three or more times, if necessary, so long as the method of folding provides one folded end portion which is not more than about half the interior height of the container. This will permit the highly advantageous stacking of the folded packages in pairs with the folded end portions lying in the same plane as shown in FIG. 6.

In other embodiments, the number of folds of the final package may be increased as necessary to obtain an optimum pack from the standpoint of ease of insertion and removal and snugness of fit.

The invention described in detail in the foregoing specification is susceptible to changes in the details, materials, configuration, and arrangement or parts as may occur to persons skilled in the art and is not limited to the precise details shown and described herein. The terminology used in the specification is used for purposes of description and not of limitation, the scope of the invention being defined in the claims.

I claim:

1. A method of packing a plurality of elongated flexible packages in a substantially rigid cylindrical container having an interior diameter greater than the width of said packages and an interior height which is less than the length of said packages and equal to or greater than the width thereof, said method comprising:

a. folding all but one said flexible packages transversely to a folded length which is less than the interior height of said container and which provides a folded end portion which is not more than one-half the interior height of said container,

b. stacking said folded packages in pairs with said folded end portions of each pair lying in the same plane,

c. placing said stacked pairs lengthwise in said container,

d. folding said one of said flexible packages at least twice transversely to a folded length of less than about half of its unfolded length,

e. placing said one of said flexible packages sidewise in said container between the interior wall thereof and said stacked pairs of packages therein; and

f. closing said container.

2. A method as in claim 1 wherein said flexible packages have an unfolded length which is greater than the interior height of said container but not more than one and one-half times said height and all but said one of said packages are folded transversely once only.

3. A method as in claim 2 wherein said flexible packages comprise shingled strips of uncooked bacon wrapped in parchment paper.

4. A method as in claim 3 wherein said flexible packages comprise about 1 pound of uncooked bacon in strips about 10 inches in length, said container comprises a tin plate can about 6 7/16 inches in diameter and 7 inches in height, and five of said packages are packed in said can.

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