

Aug. 1, 1967

B. W. STRAUSS

3,333,757

FIBREBOARD INTERPACKING

Filed March 2, 1966

2 Sheets-Sheet 1

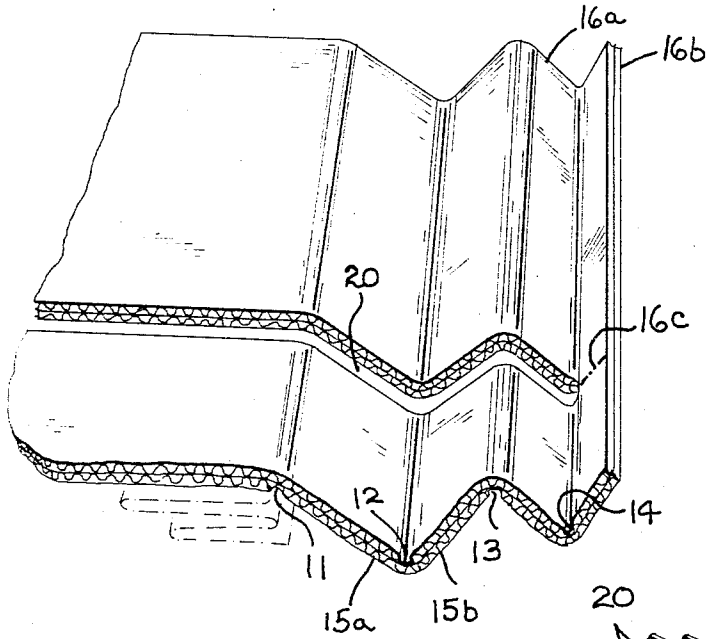


FIG. 2

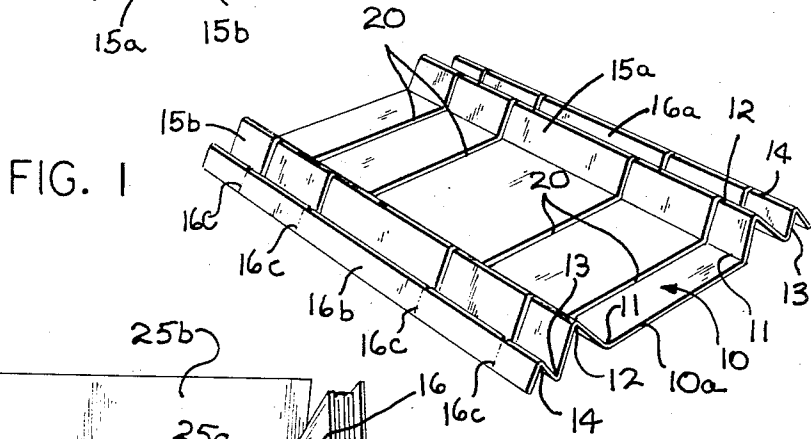


FIG. 1

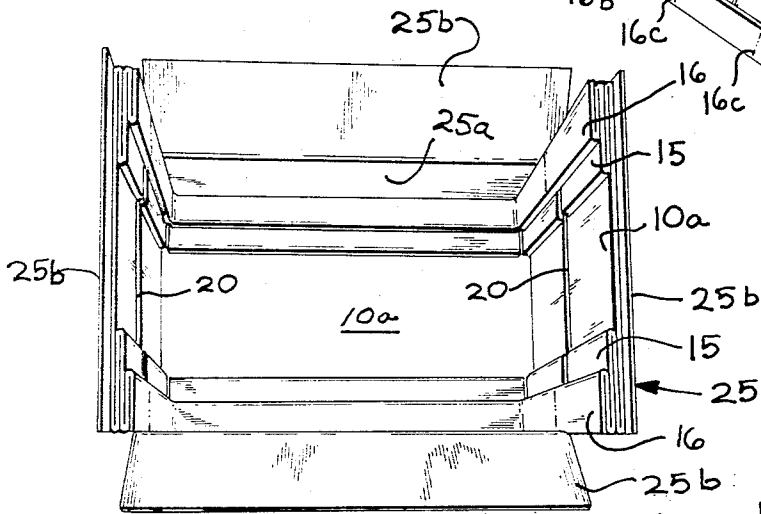


FIG. 4

INVENTOR  
BRUCE W. STRAUSS  
BY W. A. Schaich &  
Thomas A. Neenan  
ATTORNEYS

Aug. 1, 1967

B. W. STRAUSS

3,333,757

FIBREBOARD INTERPACKING

Filed March 9, 1966

2 Sheets-Sheet 2

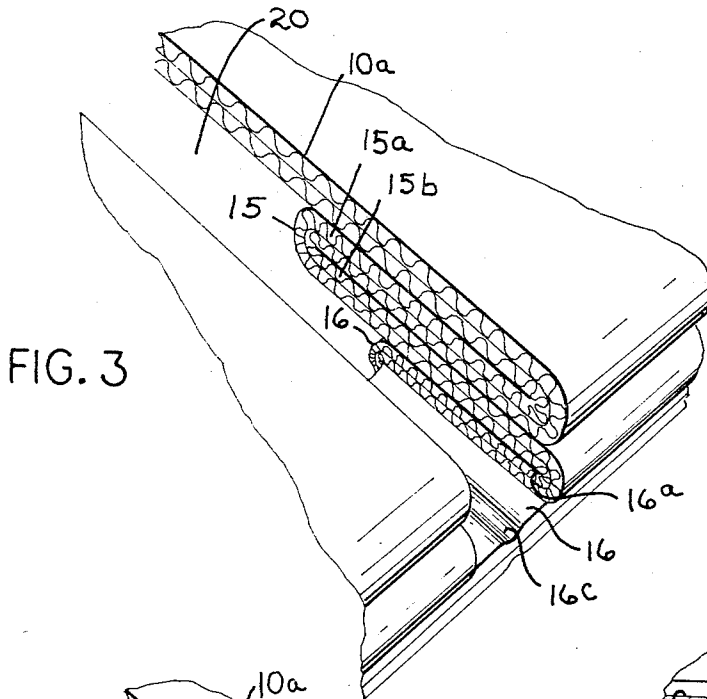


FIG. 3

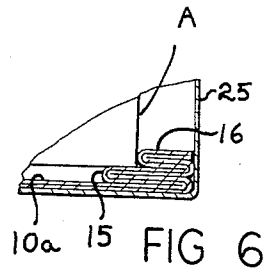


FIG. 6

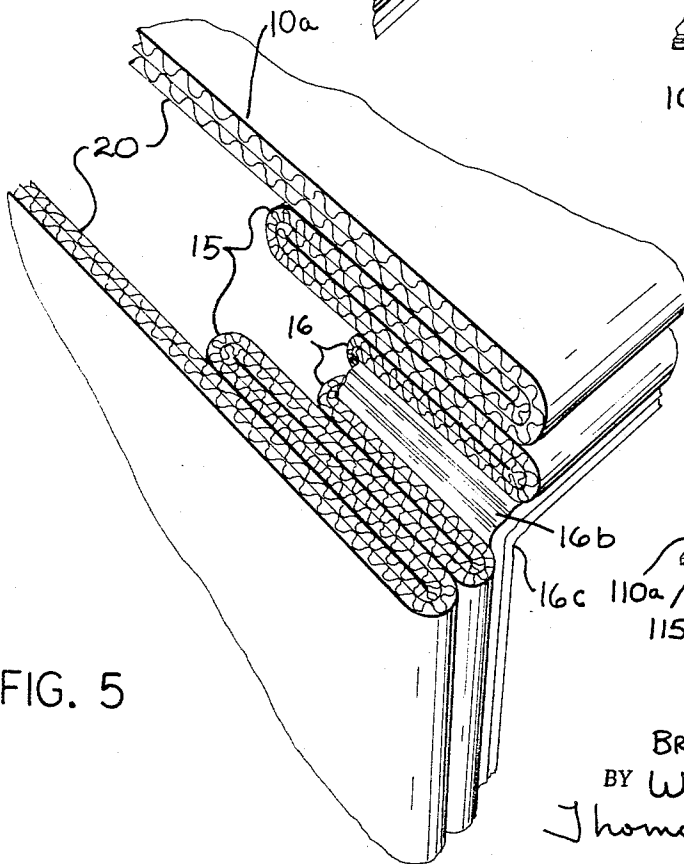


FIG. 5

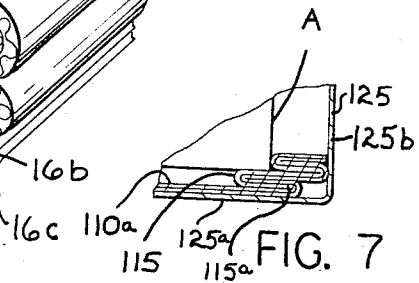


FIG. 7

INVENTOR  
BRUCE W. STRAUSS  
BY W. A. Schaich &  
Thomas C. Meehan  
ATTORNEYS

3,333,757

**FIBREBOARD INTERPACKING**

Bruce W. Strauss, Pleasant Hill, Calif., assignor to Owens-Illinois, Inc., a corporation of Ohio  
 Filed Mar. 9, 1966, Ser. No. 533,041  
 5 Claims. (Cl. 229-14)

This invention relates to interpacking and more particularly to a single piece fibreboard interpacking for maintaining an article in spaced relationship with respect to the walls of a surrounding shipping container.

In U.S. Patent No. 3,146,932 issued Sept. 1, 1964, to the assignee of this application, there is disclosed and claimed a one-piece fibreboard interpacking which has enjoyed substantial usage in the trade. It happens, however, that when it is desired to provide an even greater spacing of the supported article relative to the walls of the surrounding shipping container, or when it is desired to use heavier grade of corrugated board to form the interpacking, that it becomes quite difficult to fold such heavy interpack and objectionable deformation, stretching and even tearing of the interpack occurs when such heavier interpacks are folded into required rectilinear configuration to fit into the conventional shipping container.

Accordingly, it is an object of this invention to provide an improved interpacking of the type described in the aforementioned Patent No. 3,146,932 which is so constructed as to retain all of the advantages of such construction but eliminates the problem occasioned by the folding of multiple plies of the interpacking element.

Therefore, the principal object of this invention is to provide an improved interpacking that is economical to manufacture and that can be quickly and efficiently assembled within a shipping container without in any manner damaging any portion of the interpacking element.

Other objects and advantages of this invention will become apparent from the following description taken in conjunction with the annexed sheets of drawings illustrating a preferred embodiment of this invention.

In the drawing:

FIGURE 1 is a perspective view showing an interpack embodying this invention;

FIGURE 2 is an enlarged scale perspective view of a portion of the interpacking shown in FIGURE 1;

FIGURE 3 is a view similar to FIGURE 2 but illustrating the interpacking after the initial folding operations have been effected;

FIGURE 4 is a perspective view illustrating the preliminary rectilinear folding of the interpacking embodying this invention to fit same within the interior of a shipping container;

FIGURE 5 is a view similar to FIGURE 3 but illustrating the configuration of the interpacking at each of the corners when the interpacking is folded into rectilinear configuration to fit within the shipping container;

FIGURE 6 is a partial sectional view illustrating the manner in which the interpacking embodying this invention supports an article in spaced relationship to the walls of the shipping container; and

FIGURE 7 is a view similar to FIGURE 6 illustrating an alternative embodiment of an interpacking element in accordance with the present invention.

The interpacking of this invention is formed from a single sheet of foldable sheet like material, such as fibreboard and commonly corrugated board, that is scored and folded in a specific manner described below to function as an interpacking within a shipping container to posi-

tion and maintain an article within the shipping container in spaced relationship with respect to the walls of the shipping container.

Referring to FIGURE 1, there is shown a board 10 of corrugated board which is of substantially rectangular configuration and has at least four parallel score lines 11, 12, 13 and 14 running along each of two opposed marginal edges of the board 10. The score lines 11 and 12 respectively define a pair of panels 15a and 15b which, as illustrated by the dotted lines in FIGURE 2, can be reversely folded to overlie the marginal edges of the central portion 10a of the corrugated sheet 10 to form a pair of raised pads 15 (FIGS. 4 and 6). The score lines 13 and 14, respectively, define a second pair of marginal panels 16a and 16b which can be folded into overlying relationship with respect to the first pair of panels 15a and 15b to form a pair of raised pads 16 (FIGS. 4 and 6). It will be noted, however, that the lateral width of panels 16a and 16b are less than that of the panels 15a and 15b and are proportioned so that when all the panels are folded into overlying relationship with respect to the central panel 10a the distance between the internal edges of the two opposed pads 16 is equal to the width of the article for which the interpacking is designated to support.

In the construction of a four-sided or perimetrically-shaped interpack, as shown, in accordance with this invention, the corrugated sheet 10 from which such interpack is formed is provided with at least three, and preferably four slots 20 which are perpendicular to the score lines 11-14. The slots 20 permit the convenient folding of the interpacking into rectilinear or perimetric configuration, as is partially indicated in FIGURE 4. If there is no objection to the ends of the interpacking 10 meeting at a corner of the resulting rectilinear configuration, then only three such transverse slots need be provided; however, it is generally preferable to provide four such transverse slots 20 as shown on the drawings with the spacing between the two innermost slots corresponding to the internal width of the shipping container and the spacing between each outermost slot and the adjacent inner slot corresponding to the height of the shipping container. It is, of course, contemplated, that the present invention has utility in the construction of multi-sided interpacking elements of a number of sides other than four, for example, in the construction of three-sided or U-shaped elements (not shown). In such a case the number of slots 20 will be suitably varied.

The outer shipping container 25 shown in FIGURE 4 of the drawings is what is known in the trade as a regular slotted container. It comprises a rectilinear body portion made up of four foldably connected side walls 25a, each side wall having bottom and top closure flaps 25b foldably connected to each edge thereof. When it is desired to assemble an article and interpacking in the container 25, the container 25 is first formed as shown in FIGURE 4 by closing the bottom flaps (not shown) thus resulting in an open top box. The interpacking 10, with the pads 15 and 16 formed thereon, is then folded about the innermost pair of slots 20 into U-shaped configuration and inserted into the box 25 through the open top, as shown in FIGURE 4. The dimensions of the interpacking 10 are selected so that it fits snugly within the interior of the box 25. The article to be shipped (shown only schematically as A in FIGURE 6) is then dropped into the box and is supported by the pair of first pads 15 in spaced relationship from the walls of the box that are

parallel to the central panel 10a of the interpacking, and the article A is concurrently maintained in spaced relationship from the remaining walls of the box by the second pair of pads 16. After insertion of the article A, the folding of the interpacking 10 to rectilinear perimetrical configuration is completed and the top closure flaps 25b may be folded to complete the shipping container.

Referring to FIGURE 6, the function of the transverse slots 20 will become apparent. If such slots were not provided, then at each corner of the interpacking, five plies of corrugated board would have to be folded and this would result in a substantial stretching or distortion of the outermost ply, which is the central body portion 10a of the interpacking and a compression of the innermost plies which are the panels 16a and 16b. Accordingly, it will be apparent that the slots 20 should extend at least across the entire width of the central panel portion 10a, but even more desirably such slots can be extended, as shown in the drawings, through all of the interconnected panels 15a, 15b and 16a with the result that only the outermost panel 16b is actually folded at the corners when the interpacking is folded into a rectilinear configuration. This folding may be promoted by the provision of a conventional score line 16c extending across the panel 16b respectively in parallelism with the longitudinal axis of each slot 20. If it is not necessary to extend the slot 20 through all of the aforementioned panels 15a, 15b and 16a, then each score line 16c should be extended across the unslotted width of the panels to the end of each slot 20 so as to facilitate the folding of the interpacking into a rectilinear configuration.

It will be understood by those skilled in the art that the drawings illustrate only a preferred embodiment of this invention. If it is desired to support a particular article in even greater spaced relationship with respect to the walls of shipping container 25, then a plurality of reversely folded first panels 15a and 15b may be provided and/or a plurality of reversely folded second panels 16a and 16b. The more panels that are provided, the more desirable is the utilization of this invention in that the slot 20 may be merely extended transversely through the additional panels and thus the corner fold may be restricted to any limited number of plies, as low as a single ply.

FIGURE 7 illustrates an alternative embodiment of the present invention which is somewhat more conservative of fibreboard than is the embodiment of FIGURES 1-6. As shown, the interpacking element has a central panel 110a which is narrower than the adjacent wall of the associated carton 125a and which, therefore, has a longitudinal edge which is spaced inwardly from the up-standing wall 125b of carton 125. Consequently, the first of the first pair of reversely folded panels which form the first pad 115, viz., panel 115a, may also be somewhat narrower than the analogous panel 15a of the embodiment of FIGURES 1-6. By such a construction, interpacking elements may be constructed of appreciably narrower sheets of corrugated board and, consequently, at reduced cost.

While only the preferred embodiments of this invention have been illustrated, it is to be understood that the relative spacings and heights of the first and second raised pads can be varied to accommodate various sized and shaped articles. It is also to be understood that the length and transverse score lines of the interpacking can be varied to wrap about articles having various contours. Where the packaged article has protuberances, such as knobs or dials, for example, cutouts to accommodate the same can be made in the interpacking without impairing its function. Other details of construction may also be modified through a wide range without departing from the principles of this invention, and it is not, therefore, the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim:

1. Interpacking for maintaining an article in spaced

relationship from an outer rectangular shipping container comprising, a rectangular central panel having an opposed pair of marginal longitudinal edges, said panel being adapted to be folded into a perimetrical configuration conforming to the interior of said shipping container, a first pair of panels respectively overlying the marginal edge of said central panel and foldably connected thereto to extend inwardly thereof, second panels overlying said first panels and foldably connected thereto, said first and second panels forming raised pads along the marginal edge of said central panel, the thickness of said raised pads being sufficient to maintain said article spaced from the walls of said shipping container that are parallel to said central panel when assembled in said shipping container, third panels overlying said second panels and foldably attached thereto to form second raised pads which extend inwardly of the width of said central panel, said third panels being narrower than said first and second panels and having their inner edges spaced apart a distance not less than the width of said article, whereby said third panels will maintain said article spaced from the walls of the container that are normal to said central panel when assembled in said container, at least three parallel transverse slots extending at least across said central panel and respectively aligned at each end with transverse score lines extending across the remaining unslotted panels to permit said central panel and pads to be folded about said article, said slots eliminating any distortion of said central panel material at the folds.

2. The interpacking defined in claim 1 wherein said slots respectively extend transversely at least to the outermost panels, whereby the folding of the interpacking about the article produces a transverse fold only in the outermost panels.

3. In combination with a parallelepiped shipping container and an article packaged in the container, an interpacking element maintaining the article spaced from selected walls of said container comprising a rectangular central panel having an opposed pair of marginal longitudinal edges, said panel being transversely folded into a multi-sided configuration, the sides of which lie adjacent to selected walls of said shipping container; a pair of pairs of reversely folded first panels respectively foldably connected to each of said marginal edges and extending inwardly thereof, said first panels respectively forming first raised pads along said marginal edges, the thickness of said first raised pads being sufficient to maintain said article spaced a desired distance from those walls of said shipping container that are parallel to said central panel when assembled in said shipping container; at least one pair of reversely folded second panels, respectively overlying one of said pairs of first panels and foldably attached thereto to respectively form a second raised pad which extends inwardly from said outermost edge of said one of the first pair of panels a distance less than the extent of said first pair of pads, said second pad maintaining said article spaced from the wall of the container that is normal to said central panel when assembled in said containers and adjacent said second pad; at least three parallel transverse slots extending at least across said central panel and respectively aligned at each end with transverse score lines extending across the remaining unslotted panels to permit said central panel and pads to be folded about said article, said slots eliminating any distortion of said central panel material at the folds.

4. The combination defined in claim 3 wherein said slots respectively extend transversely at least to the outermost of said second panels, whereby the folding of the interpacking about the article produces a transverse fold only in the outermost panels.

5. The combination defined in claim 3 wherein the central panel and each of the first of the first pairs of reversely folded panels terminates at a location substantially inwardly of the walls of the container which are

3,333,757

5

perpendicular central panel and parallel to the edges thereof.

**References Cited**

**UNITED STATES PATENTS**

3,146,932 9/1964 Mayer.

6

**FOREIGN PATENTS**

1,150,134 7/1957 France.

419,770 11/1934 Great Britain.

5 JOSEPH R. LECLAIR, *Primary Examiner.*

D. M. BOCKENEK, *Assistant Examiner.*