Oct. 5, 1965 E. G. THIELE 3,209,981

SHIPPING CASE CONSTRUCTION

Filed April 29, 1963

FIG. 1

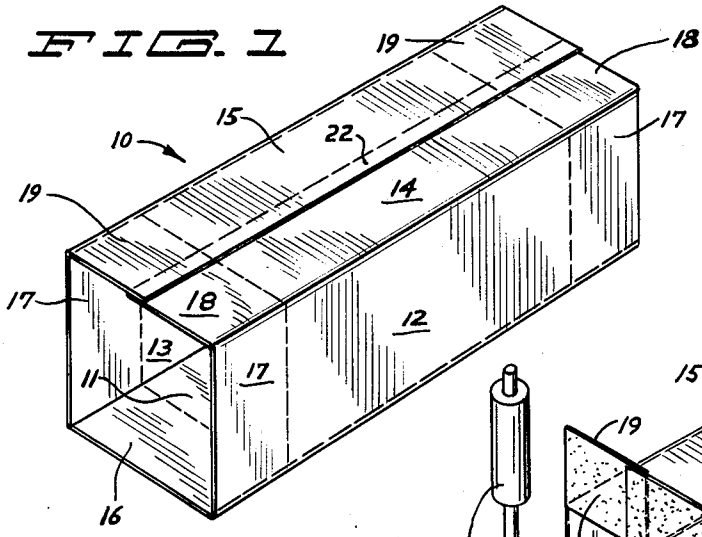


FIG. 2

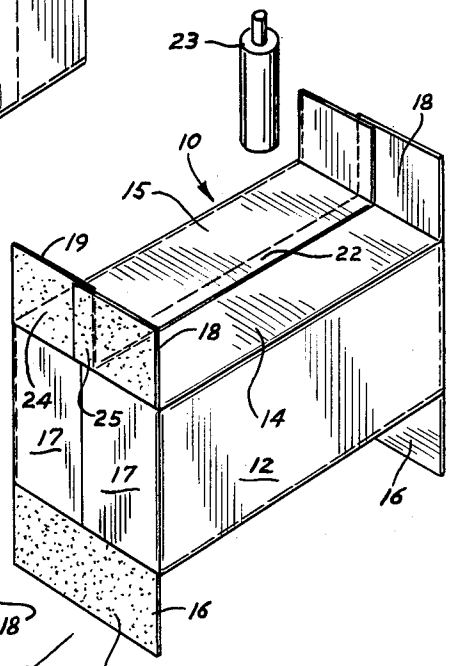


FIG. 3

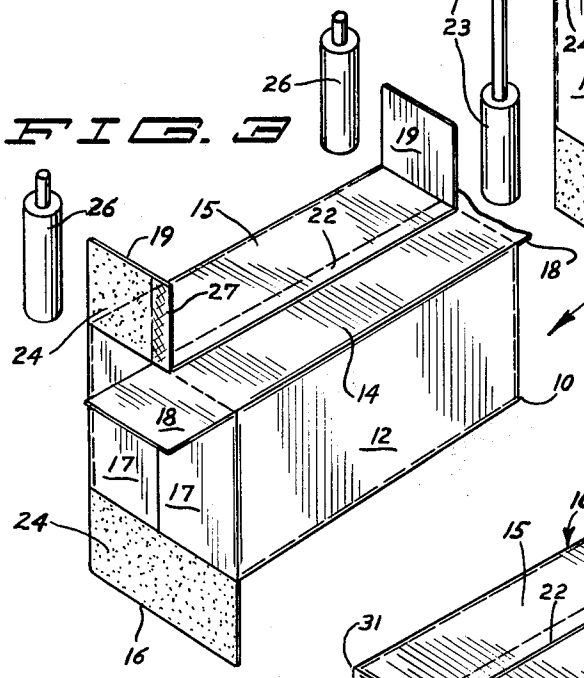
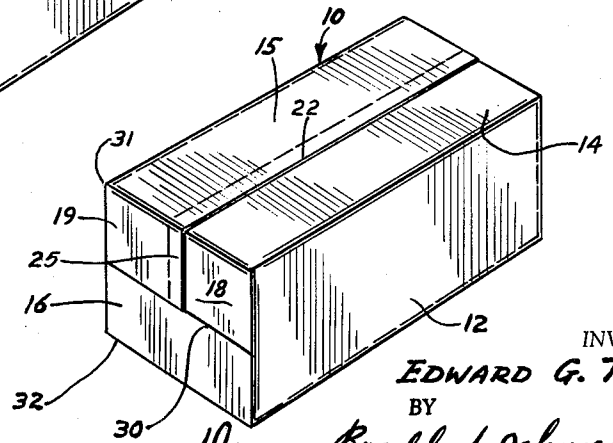


FIG. 4



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SHIPPING CASE CONSTRUCTION

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The present invention has relation to a shipping case and more particularly to an improved method of making and sealing a five-panel shipping case in order to give it additional strength.

At the present time in the use of shipping cases for packaged products it is customary to use a five-panel case with the top closure of the case formed by two panels which abut against each other. Extensions on the ends of these panels form flaps that are glued against the end panels of the case to seal the case. It is customary to glue the top end flaps which are formed with side panels of the case and to leave the abutting top panels either unfastened with respect to each other or to apply a strip of tape the juncture.

The shipping cases of the general type have been found to be inadequate in strength for the severe usage encountered during handling of these closed cases. In order to further strengthen the five-panel case the structure of the present invention was advanced. Through the use of gluing operations on the edge or end flaps, which are attached to the respective panels of the box and fold over to close the ends of the carton, the mechanical strength of the carton can be greatly increased without sacrificing ease of opening and also without incurring additional expense.

It is an object of the present invention to present an outer shipping case which is sufficiently strong to withstand the normal severe handling they receive.

It is a further object of the present invention to present a strong outer shipping case which is glued shut.

It is a still further object of the present invention to present an outer shipping case or carton that is easy to close and gives improved mechanical strength.

Other and further objects are those inherent in the invention herein illustrated, described and claimed, and will become apparent as the description proceeds.

To the accomplishment of the foregoing and related ends, this invention then comprises features hereinafter fully described and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative, however of but a few of the various ways in which the principles of the invention may be employed.

The invention is llustrated by reference to the drawings in which corresponding numerals refer to the same parts, and in which:

FIG. 1 is a perspective view of a five-panel shipping case shown with the end flaps in open position;

FIG. 2 is a perspective view of the case of FIG. 1 showing upper and lower edge flaps in position after the initial gluing operation;

FIG. 3 is a perspective view of the cases shown in FIG. 1 and shown in a second gluing operation; and

FIG. 4 is a perspective view of the shipping case of FIG. 1 after it has been completely closed.

Referring to the drawings and the numerals of reference thereon, a five-panel shipping case illustrated generally at **10** is shown in its erected position. The case has been loaded with a product, for example canned goods (not shown). The only operation left on the shipping case is to close the end flaps. It should be noted that the shipping case can be placed as shown in FIG. 1 through the use of conventional handling equipment. The shipping case has a bottom panel **11**, a first side panel **12**, a second side panel **13**, both of which are attached to the bottom panel **11**, a first top panel **14** which is hingedly attached to side panel **12** and a second top panel **15** which is hingedly attached to side panel **13**.

Each of the panels has an end flap attached thereto. There are a pair of bottom end flaps **16**, four side end flaps **17**, two first top flaps **18** and two second top flaps **19**.

In conventional five-panel cases the top two panels **14** and **15** merely abut in the center of the top. As can be seen in FIG. 1 in the shipping case of the present invention, panel **15** is overlapped over a portion of panel **14** in the area indicated at **22**. The overlap extends across the cover end flaps **18** and **19** as shown.

The case is then moved through suitable closing equipment which cause the side flaps **17, 17** to close and which lift the bottom flaps **16, 16** and the top flaps **18** and **19** to position substantially 90 degrees to their respective panels and extending away from the case. The side flaps **17, 17** form end panels in the case and extend between the side panels. The case is then moved past suitable glue rollers **23** and a pattern **24** of glue is applied to the normally inner surfaces of the top and bottom flaps on both ends of the case as shown in FIG. 2. As can be seen the overlapping portions **25** of the top flaps **18** and **19** are not glued at this time.

The case is then further processed and the first top end flaps **18, 18** are released and are moved to a horizontal position substantially co-planar with respect to their top panel **14**. The second top end flaps **19, 19** are held in their vertical position and additional glue is applied to these flaps with glue rollers **26, 26**. The glue rollers **26, 26** apply a glue pattern to the previously unglued portion **27** of the top end flaps **19, 19**. This portion **27** is the area wherein the first and second cover end flaps overlap.

After glue has been applied to all surfaces of the top and bottom end flaps **18, 19** and **16** the case is completely closed by moving the top and bottom flaps against each other and against the side flaps **17, 17** so that the cover end flaps are glued to the side flaps. The overlapped portion **22** along the top panel and extending along the longitudinal direction of the top of the box is glued. However, the overlapped portion **25** of the first and second top end flaps is glued and this joint greatly adds to the strength of the shipping case. Without the glued overlapped portion of the top end flaps there is an unjoined seam extending along the entire longitudinal length of the case (between the top panels) and downwardly between the top end flaps. An open seam on the ends of the case permits the case to tend to split when subjected to vertical load or when tossed during loading operations. The reduced strnegth of the case makes this type of seam undeisrable.

Previously tape had to be applied to the top seam in order to give the box some strength. This application of tape made the opening of the case by clerks removing the product difficult and also resulted in a damaged product because a knife was usually used for slitting the tape. The knife would many times penetrate the interior boxes and cause damage.

With a case made according to the present invention the fingers can be inserted between the top panels and the case can be ripped open.

As shown the bottom end flap **16** and the top end flaps **18** and **19** exactly meet along a line **30**. If additional strength is needed the case blank can be cut so that the end flaps are long enough to provide a complete overlap. In other words flap **16** could extend all the way up to the upper edge **31** of the case and the end flaps **18** and **19** could extend all the way down to the lower edge **32** of the case. This would give additional strength in a vertical direction and further aid in preventing collapse of the case from compressive loads.

By using an overlap of the top panels and gluing the two top end flaps together in the areas where they overlap, a much stronger shipping case results. This gives rise to greater sales and less damage to the shipped product.

What is claimed is:

1. A shipping case filled with a product to be shipped, said case comprising a bottom panel having opposite ends, a pair of side panels joined to said bottom panel and extending substantially at right angles thereto, each side panel having opposite ends, a side flap for each side panel end joined to the respective side panel end and extending toward the opposite side panel, a bottom end flap joined to each end of the bottom panel and extending upwardly thereabove to overlap the adjacent portions of the side flaps, the each bottom panel end flap having an inner surface glued to the overlapped portions of the adjacent side flaps, and a pair of top cover panels, one hingedly attached to each of said side panels, said cover panels each having a pair of end flaps, each of said end flaps being of sufficient length to extend downwardly from its top cover panels to adjacent said bottom flap, the end flaps of a first of said cover panels overlapping the corresponding end flaps of the other cover panel to form an overlapping joint extending from the top toward the bottom panel, the cover end flaps at each end being glued to each other along the overlapping joint and to the side flaps at their areas of overlap after the contents of said shipping case have been deposited therein.

2. The combination as specified in claim **1** wherein said top panels overlap each other the same amount as said top end flaps and are unglued.

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