

March 24, 1959

W. B. DULANEY

2,878,983

NESTING PAPERBOARD BOXES

Filed March 12, 1956

2 Sheets-Sheet 1

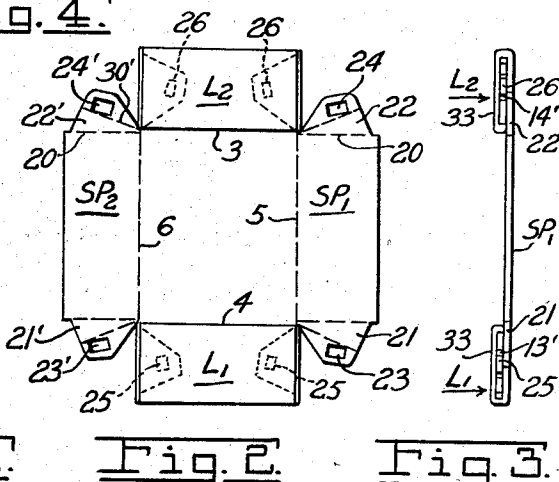
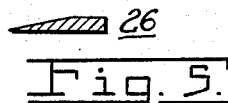
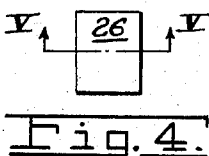
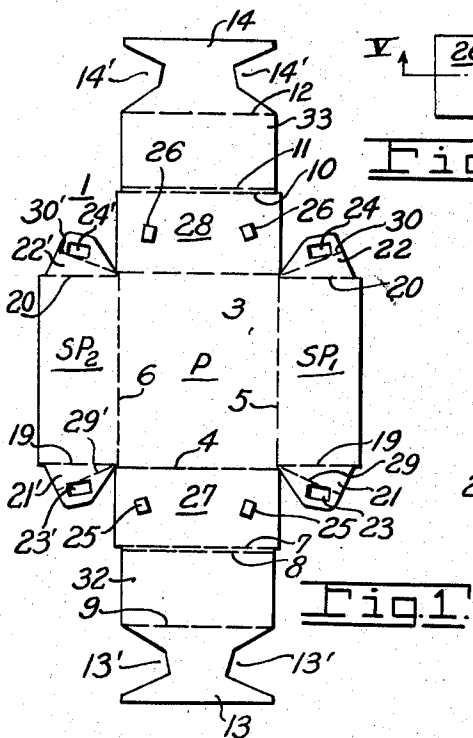


Fig. 2

Fig. 3

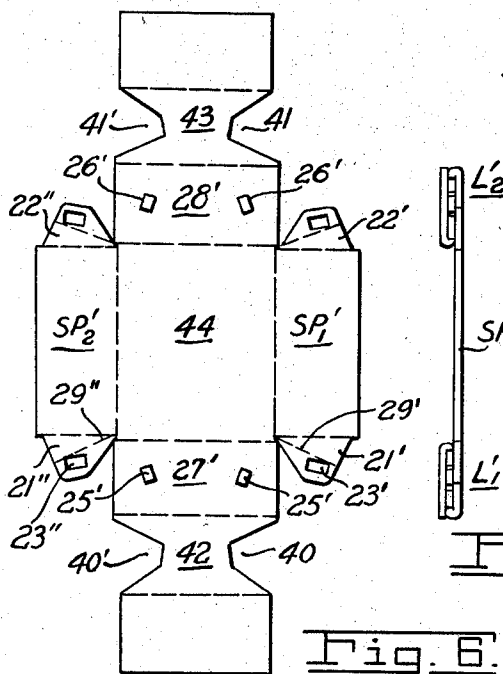


Fig. 7

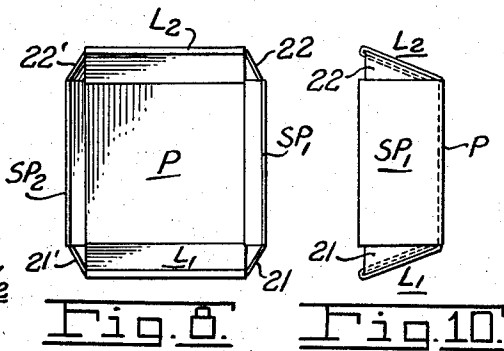


Fig. 8

Fig. 10

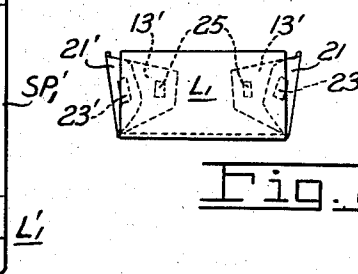


Fig. 9

INVENTOR.
WILLIAM B. DULANEY
BY
Jugelter & Jugelter
Attys.

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W. B. DULANEY
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2 Sheets-Sheet 2

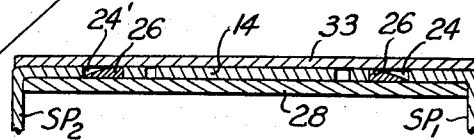
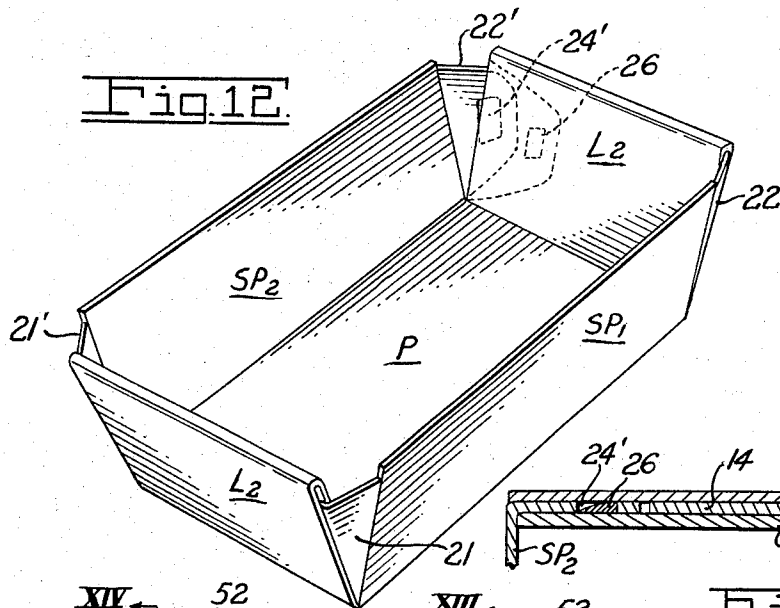
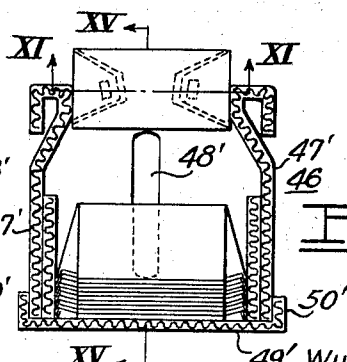
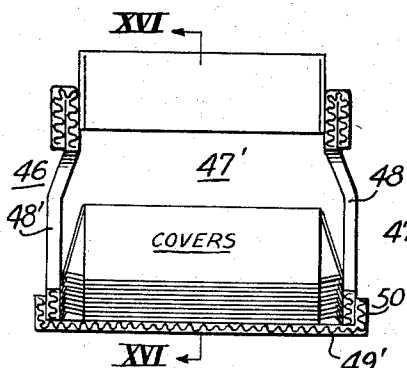
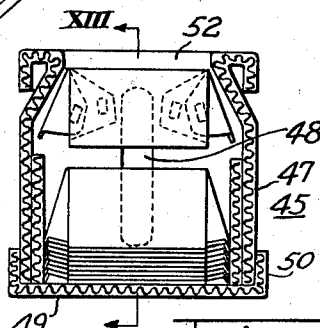
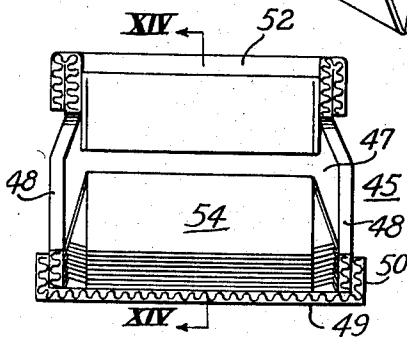


Fig. 11.



INVENTOR.
WILLIAM B. DULANEY

BY
Jugelter & Jugelter
Attys.

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2,878,983

NESTING PAPERBOARD BOXES

William B. Dulaney, Madeira, Ohio

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2 Claims. (Cl. 229—34)

This invention relates to boxes of paper board material, of the type used by department stores and other establishments for packaging merchandise. More particularly, the invention relates to boxes and covers therefor that can be shipped and stored in a nested condition and quickly and easily put in a condition suitable for use.

Cartons or boxes of the type referred to above come either in a knocked-down condition or in a rigid form in which they are used. In the former storage space is not such a problem but time consumed in putting them in usable form is; in the latter, shipping and storage space are burdensome on the manufacturer and the stores and shops that use them as well.

An object of this invention is to provide a box, including the cover, that is so constructed it can be nested for shipping by the manufacturer, and stored by the stores and shop keepers, and be easily and quickly converted into a rigid box for use.

A further object is to provide a box and cover therefor in which each is so constructed that the sides and ends may initially be flared outwardly to such extent that the boxes and the covers may be separately stacked in nested condition, the ends and sides of each being provided with means whereby they may be rigidly coupled together for use.

A still further object is to provide a shipping and storage carton for boxes and covers as above set forth, which is so constructed that when a cover or a box is removed from the carton the sides and ends are rigidly coupled to each other.

The foregoing and other objects of the invention will be apparent to those of ordinary skill in the art to which the invention pertains from the following description and drawings.

In the drawings:

Figure 1 is a view of a blank from which a box component, i.e. a box body or a box cover embodying the invention, may be made;

Fig. 2 is a plan-view of the blank of Fig. 1 with the ends folded into a flat loop;

Fig. 3 is an edge view of the blank shown in Fig. 2;

Fig. 4 is a plan-view of a locking wedge embodied in the box component shown in Figs. 1, 2 and 3;

Fig. 5 is a view in section taken on line V—V of Fig. 4;

Fig. 6 is a plan-view of a modified form of the blank shown in Fig. 1;

Fig. 7 is an edge view of the blank of Fig. 6 with the ends thereof folded into position to form flat loops;

Fig. 8 is a view of a box component assembled for nesting with other box components;

Figs. 9 and 10 are end and side views, respectively, of the box component shown in Fig. 8;

Fig. 11 is a view in section taken on line XI—XI of Fig. 16;

Fig. 12 is an enlarged perspective view of a box component;

Fig. 13 is a view in section taken on line XIII—XIII

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of Fig. 14, of a shipping and storage container or carton for box bodies of the type disclosed in the preceding views, the device being adapted to automatically put the box bodies in condition for use as they are removed from it;

Fig. 14 is a view in section taken on line XIV—XIV of Fig. 13;

Fig. 15 is a view similar to Fig. 13 showing a box top or cover partially removed from the container; and

Fig. 16 is a view in section taken on line XVI—XVI of Fig. 15.

In Fig. 1 of the drawings, a blank 1 is shown from which a box component may be made. By the term "box component" is meant the cover or the box body of a box. The cover would be slightly larger than the body but otherwise the blank from which the box body and the top are made are of the same form and shape. The blank 1 is scored at the dotted lines 3, 4, 5 and 6 to define a main panel P and side panels SP₁ and SP₂. The main panel P would be either the top or bottom of a box cover or box body, respectively, as the case may be. The blank is also scored at 7, 8, and 9 and 10, 11 and 12 to facilitate constructing the end panels in the form of triple folded, return bend, flat loops L₁ and L₂. When the blank is folded at these score or crease lines, the loops L₁ and L₂ are formed as shown in Figs. 2 and 3. The extreme end portions 13 and 14 are notched inwardly as shown at 13' and 14' for a purpose to be explained infra.

The opposed ends of the side panels SP₁ and SP₂ are scored or creased at 19 and 20 so that end tabs 21 and 22 and 21' and 22' may be bent inwardly of the side panels SP₁ and SP₂ when the box component is assembled either in a condition for nesting with other box components or in a final assembled condition. The tabs 21 and 22 and 21' and 22' are provided with apertures 23 and 24 and 23' and 24', respectively, disposed to register with blocks 25 and 26 on the portions 27 and 28 of the blank. As shown, the tabs 21 and 22 and 21' and 22' are scored as at 29 and 30 and 29' and 30' so that they may be bent to facilitate insertion into the loops L₁ and L₂ where they will be in position to interlock with the blocks 25 and 26 as shown in the enlarged view of Fig. 11. The interlocking with blocks 25 is not shown in Fig. 11 but is indicated in Fig. 16.

Fig. 2 illustrates the form and shape of the blank of Fig. 1 after the flat loops L₁ and L₂ have been formed and located in position to receive the tabs 21 and 22 and 21' and 22', respectively. When the structure of Fig. 2 is formed into a permanent box component the end tabs 21 and 22 and 21' and 22' are received between portions 28 and 33 and 27 and 32, respectively, of the box blank, the notches 13' and 14' at that time accommodating the tabs. Thus, as shown in Fig. 11, the portion containing the notches 14' lies between the portions 28 and 33, the wedges being then received in the apertures 24 and 24', respectively. The opposite end of the box component is similarly interlocked with the side panels SP₁ and SP₂.

When a box component is in a condition to be nested with another as shown by Figs. 8, 9 and 10, the outer ends of tabs 21 and 22 and 21' and 22' are bent sufficiently at the score lines 29, 30 and 29', 30' to ensure that they will be slidably retained between the portions 28 and 33 and the portions 27 and 32.

In Fig. 6 a modified form of box component blank is shown. Since that blank differs from the one shown in Fig. 1 only by the location of the notches which accommodate the end tabs of the side panels, similar and corresponding parts are identified by similar reference characters with primes affixed. The notches of Fig. 6 are indicated at 40 and 41 and 40' and 41'. These notches are provided in intermediate portions 42 and 43. The portions of the blank at the ends of the main panel 44 are

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triple folded as in the case of the blank of Fig. 1 and when so folded the edge view is as shown in Fig. 7.

The blank of Fig. 6 may be folded and partially assembled to provide a box component suitable for stacking in a nesting condition.

Figure 12 is an enlarged view of a box component (box body or cover) in an expanded condition whereby one component may be nested in another.

The box components may be shipped in the nesting condition in specially designed containers 45 and 46 such as shown in Figs. 13 through 16, respectively. The container of Figs. 13 and 14 may be for box bodies and the container of Figs. 15 and 16 for box covers or tops. In Figs. 13 and 14 the container is shown in section, the section being so taken as to illustrate the ends of the box bodies.

The container 45 comprises a body portion 47 having in the end walls finger slots 48. The bottom of the body is received in a base 49 having marginal side flanges 50 to which the bottom of the body 47 may be secured with staples or with glue or other adhesive. The upper portion of the body 47 tapers to a throat 52 of approximately the dimensions of a box body in its usable condition, as distinguished from a nesting condition. The box bodies are stacked in carton 45 with the sides and ends extending downwardly.

As a box body is raised from a stack 54 in the container 45 the ends engage the throat as in Fig. 13 whereby they are squeezed into a position normal to the main panel P. As shown in Fig. 14 the sides are engaged by the throat and shifted into the interlocking position as shown in Fig. 16. As the box body is pulled out of the container, the side and end panels thereof are interlocked as indicated in Figs. 15 and 16.

Figs. 15 and 16 show a container 46 having a stack of nested box tops or covers. These views also show how a cover is changed from a nesting condition to a rigid form as it is lifted from the stack and passed through the throat.

From the foregoing description it will be apparent that paper board boxes and covers therefor, may be so constructed that they may be stacked in a nesting condition and shipped and stored in that condition until used. To put them in a usable condition all that is required is to move the ends and sides of the box or cover into a posi-

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tion normal to the main panel so that the end tabs on the sides may interlock with the wedge blocks of the end loop panels thereof.

The wedges as shown in Figs. 4 and 5 may be made of small pieces of wood or they may be made of laminated paper or plastic, in the shape required. The wedge shape of the members 25 and 26 causes the tabs having the apertures therein to slide into position easily and efficiently.

Having thus described the invention it will be apparent to those of ordinary skill in the art to which the invention pertains that various modifications and changes may be made without departing either from the spirit or the scope of the invention.

Therefore, what is claimed as new and desired to be secured by Letters Patent is:

1. A paper board box component comprising a main panel, side and end panels, the end panels comprising triple layers folded one on the other to provide a loop at each end of the main panel, the middle layers of each end panel being notched inwardly from the opposite sides thereof to provide tab receiving spaces, and the ends of the side panels having tabs extended inwardly into said tab receiving spaces and being slidable therein so that the side and end panels may take diverging positions relative to each other whereby one box component may be nested in another, and wedge and keeper means on said tabs and loops disposed to interlock with each other when the side and end panels are shifted from said diverging positions to positions where they are substantially normal to the main panel to thereby form a box component in which the side and end panels are rigidly secured to each other and to the main panel.

2. A box component as in claim 1 in which the wedge means are secured to the outer layers of the triple layer end panels.

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