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Kleinhaut

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[45] **Apr. 24, 1973**

[54] **PAPER BOX CONSTRUCTION**

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[73] Assignee: **Bagprint Ltd.**

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[21] Appl. No.: **178,679**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 155,202, June 21, 1971, abandoned.

[52] **U.S. Cl.** .....**229/52 A,** 229/38, 229/54 R, 229/55, 229/62

[51] **Int. Cl.** **B65d 5/46**

[58] **Field of Search** .....229/38, 39 R, 40, 229/52 A, 52 Al, 52 AM, 52 AN, 54 C, 54 R, 62, 55

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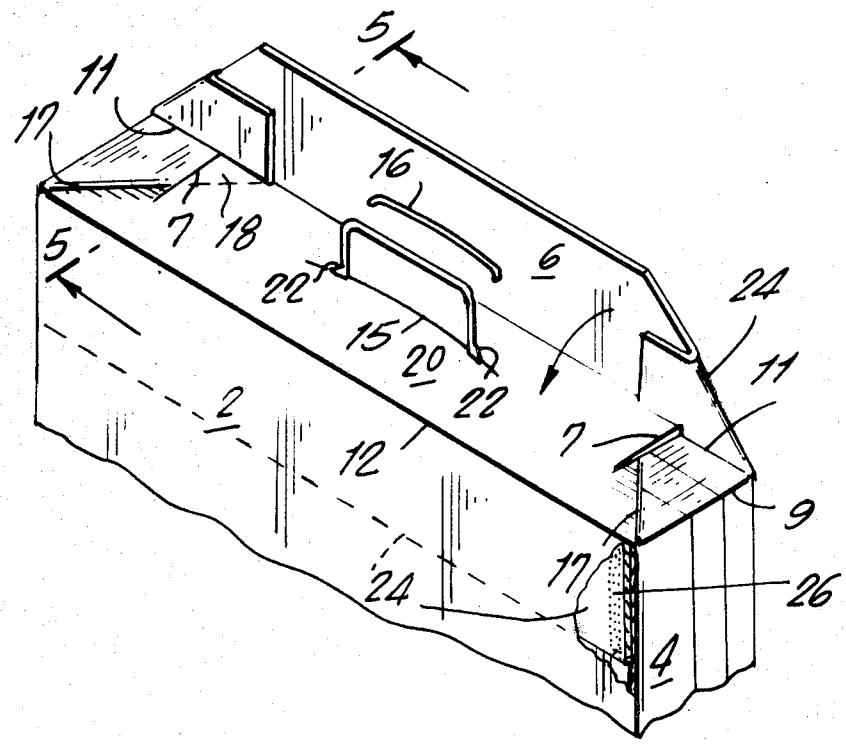
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Primary Examiner—Samuel B. Rothberg
Assistant Examiner—Stephen Marcus
Attorney—Jordan B. Bierman et al.

[57] **ABSTRACT**

A generally rectangular paper box having first and second closure panels with side webs between the panels at the upper end of each of the sides, a first stiffener on the first panel and a second stiffener on the second panel, the first panel adapted to underlie the second stiffener in order to close the box, the second stiffener and second panel having triangular cut-out sections, one leg of each of the triangles being at an angle to the web adjacent thereto and spaced apart therefrom, the leg being inclined away from the web adjacent thereto in the upward direction. There is also provided a centrally located longitudinal slot in the first panel and the first stiffener, an opening in the second panel and the second stiffener which is at least partly in register with the slot when the box is closed, a handle having a stop which bears against the underside of the first stiffener, the handle projecting through the slot and adapted to pass through the hole when the box is closed. The first stiffener and panel are folded substantially perpendicularly to the front panel and the webs are folded inwardly to abut the first panel and the second stiffener, thereby forming points, the second panel and stiffener being folded substantially perpendicularly to the back panel to close the box. In a preferred form of the device there are slits in the first panel and stiffener through which the points pass so that they lie beneath the first panel.

11 Claims, 7 Drawing Figures



Patented April 24, 1973 3,729,127

2 Sheets-Sheet 1

FIG. 1

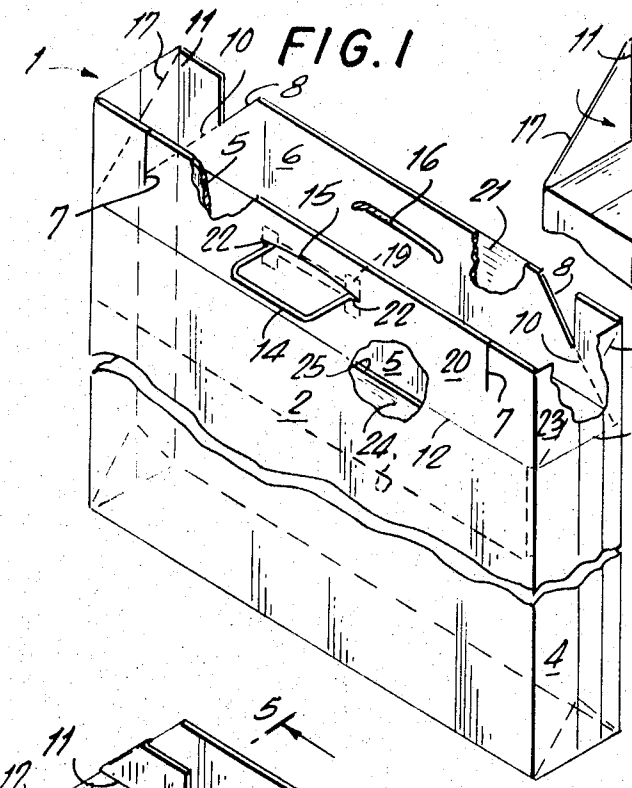


FIG. 2

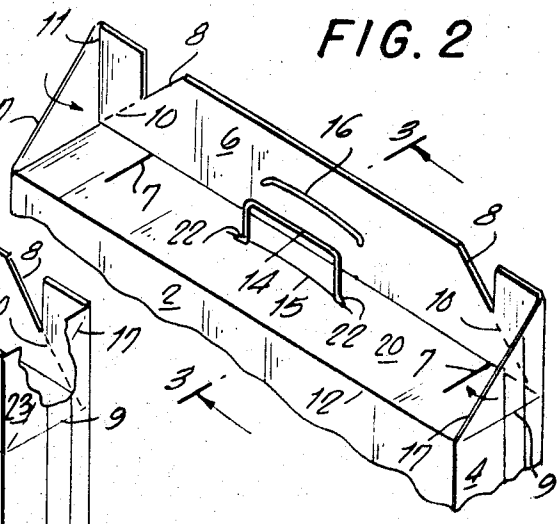


FIG. 3

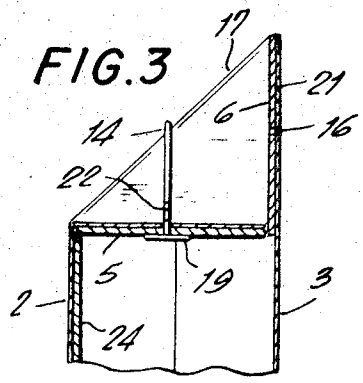


FIG. 4

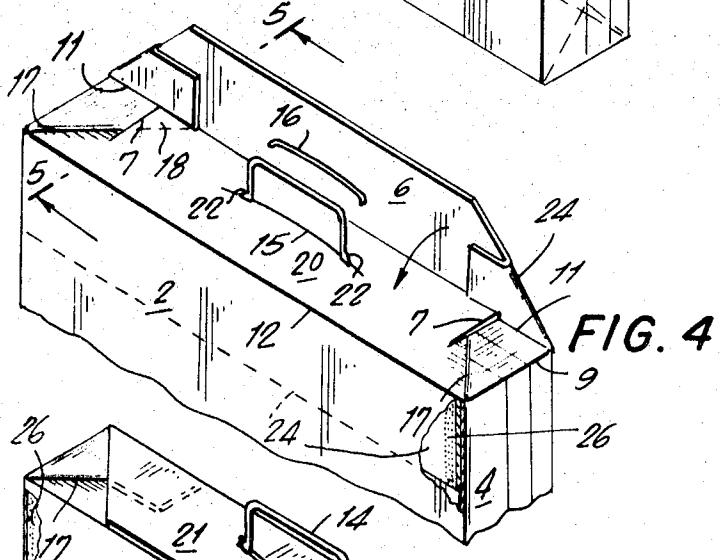


FIG. 5

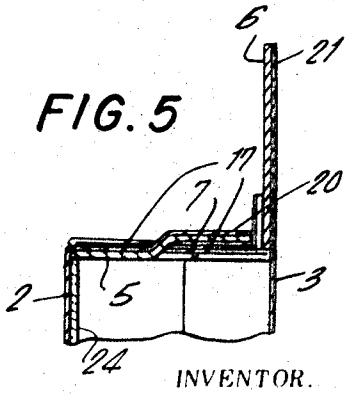
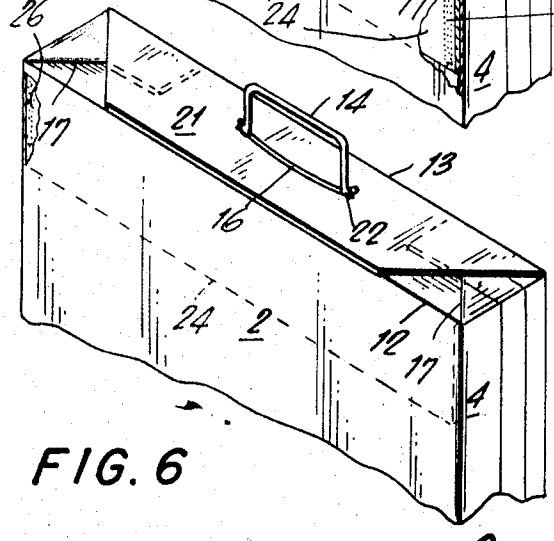
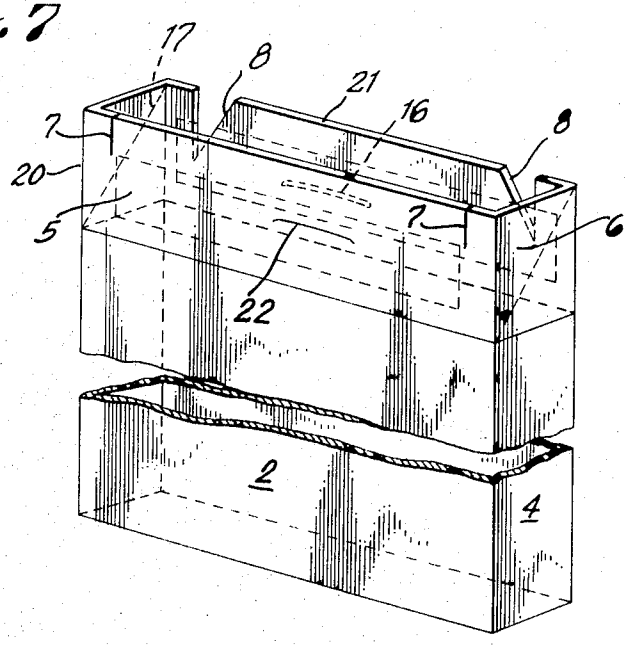


FIG. 6



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Fig. 7



PAPER BOX CONSTRUCTION

This is a continuation-in-part application of copending application Ser. No. 155202 of June 21, 1971 now abandoned.

The present invention relates to the field of paper box construction and more specifically is directed to an improved folding paper box with a unique closing and locking means.

In recent years, the use of paper boxes rather than bags has become very popular in retail stores. It is desired that these boxes fold flat for shipping and storage and open into a generally rectangular shape when in use.

Among the problems with such boxes is the difficulty of obtaining a neat tight closure which can be effected by the sales person without undue difficulty. Moreover, it is preferable that the box be capable of being opened again and reclosed and sealed so that additional articles, purchased perhaps at another department of the same store, can be inserted.

The tight closure is required not only for neatness and appearance but also to prevent rain, snow or the like from entering the box and damaging the contents.

The present invention provides such a box which is easy to fold, better looking and can be locked securely in the closed position in a simple and economical manner. Additionally, the box can easily be reopened and resealed an indefinite number of times.

The present invention consists of a paper box comprising a front and a back with sides connecting them. The upper parts of the front and back constitute a first closure panel and a second closure panel respectively, and side webs are provided between the panels at the upper end of each of the sides. A first stiffener is on the first panel and a corresponding second stiffener is on the second panel. The first panel is adapted to underlie the second stiffener when the box is in the closed position.

The second stiffener and second panel have cut-out sections substantially in the form of triangles, and one leg of each of the triangles is at an angle to the web adjacent thereto. The leg is spaced apart from the web and is inclined away from the web in the upward direction.

There is a substantially centrally located longitudinal slot in the first panel and stiffener and an opening in the second panel and stiffener which is at least partly in register with the slot when the box is closed.

A handle is provided which has at least one stop, which stop bears against the underside of the first stiffener. The handle projects through the slot and is adapted to pass through the hole when the box is closed. The first stiffener and panel are folded substantially perpendicularly to the front and the webs are then folded inwardly to abut the first panel and the second stiffener, thereby forming points. The second panel and stiffener are folded substantially perpendicularly to the back in order to complete the closure of the box.

The handle is pushed through the hole and held in the hand to keep the box closed.

In a further modification of the invention there is a pair of stops, each of which comprises an enlargement at or adjacent to the lower end of each arm of the handle. In a still more preferred embodiment, the opening is larger than the cross-section of the arm of the handle passing through and there is provided at least one nose

on the handle which overlies the second panel when the box is closed. This feature aids in retaining the box in its closed position by positively holding it between the stops on the underside of the first stiffener and the nose or noses on the upperside of the second panel.

In order to virtually eliminate any possibility of rain or snow entering the box through the opening and the slot (through both of which the handle passes), it has been found advantageous to have the opening in register with the slot only at the point or points through which the handle passes.

As a still further feature of the present invention, holes preferably in the form of slits are provided through the first panel and the first stiffener. These holes are so located as to be able to receive the points which were formed by the inward folding of the webs. The points are passed through the holes so that the base portions of the webs overlie the first panel while the points pass through the holes and underlie the first stiffener and panel. In this manner, an extremely tight and secure box is obtained. The cut-out sections assist in the formation of the points, and at the same time minimize the thickness of the outer end of the second panel and stiffener so that it lies very flat. The points passing through the holes lock the box so that even should the second panel and stiffener come loose there is still no way for foreign materials to find their way into the box.

In addition, the noses which overlie the ends of opening **16** serve to tightly retain the second stiffener and panel in the proper closed position.

In a preferred form of the invention a third stiffener is hingedly connected to the first stiffener adjacent the first hinge. The third stiffener is most preferably glued to the front only near its ends.

The third stiffener provides additional resistance to crushing especially when heavy objects such as overcoats are to be carried. In addition, the omission of glue except at the ends of the third stiffener makes it easier to fold the first and third stiffeners on the hinge therebetween.

In the accompanying drawings constituting a part hereof and in which like characters indicate like parts:

FIG. **1** is a perspective view of the box in its open position;

FIG. **2** is a perspective view of the box showing the first step in closing;

FIG. **3** is a cross-section along line **3-3** of FIG. **2**;

FIG. **4** is a view similar to that of FIG. **2** showing one of the webs folded in and one of the points inserted;

FIG. **5** is a cross-section along line **5-5** of FIG. **4**; and

FIG. **6** is a view similar to that of FIG. **4** showing the box in its completely closed position.

FIG. **7** is a perspective view of the box showing the stiffeners as being shorter and narrower and the panels to which they are attached.

Paper box **1** is composed of front **2** and back **3**, which are connected by sides **4**. There is also provided a bottom, as can be seen in FIG. **1**.

At the upper part of front **2** is first closure panel **20** having a first stiffener **5** affixed thereto. At the upper part of back **3** is second closure panel **21** to which is affixed second stiffener **6**. Second panel **21** and second stiffener **6** are provided with triangular cut-out sections **8** and, in a preferred form of the invention, first closure panel **20** and first stiffener **5** are provided with slits **7**.

First panel 20 and first stiffener 5 have slot 15 located substantially centrally thereof. Second panel 21 and second stiffener 6 have a corresponding opening 16.

Handle 14 with stops 19 passes through slot 15, as shown in FIG. 1.

In order to close the box, panel 20 and stiffener 5 are folded on first hinge 12 to assume the position shown in FIG. 2. Web's 23 are folded over on fold 17 to form points 18, and then down on fold 9. The elements on panel 21, which are formed by cutout 8, are folded inwardly on fold 10. The points are inserted in slit 7, which extends through the edge of panel 20, by lifting the inner edge of the slit (note FIG. 4) and inserting the edge formed at fold 17 in the outermost portion of slit 7. The elements formed by cutouts 8, are folded down on fold 11 as panel 21 is folded down on its hinge (See FIG. 2).

Then points 18 are passed through slits 7 so that they underlie panel 20 and stiffener 5.

Panel 21 and stiffener 6 are then folded down on second hinge 13, as shown in FIG. 6, while handle 14 is passed through opening 16. Noses 22 overlie panel 21, thereby locking the box securely in its closed position.

In a preferred form of the invention, third stiffener 24 is connected by a hinge 25 to first stiffener 5 and affixed to front 2. This helps prevent collapse of the paper box if a heavy load is carried therein.

It has also been found advantageous to affix stiffener 24 to front 2 only at its ends, as by patches 26 of glue. This provides a certain amount of "give" when panel 20 is folded along hinge 12 and makes the folding easier.

As shown in FIG. 7, stiffeners 5 and 6 may be made shorter and narrower then the panels to which they are affixed. The size and shape of these stiffeners are dependant upon the amount of structural strength required in panels 20 and 21. The amount of strength required in these panels will depend upon the intended use of the box and therefore, the size of these stiffeners may be altered accordingly.

While only a limited number of embodiments of this invention have been specifically described, such changes as would produce improved results may be made without departing therefrom. For example, the second stiffener can advantageously be made somewhat shorter and/or narrower than the second panel. It has been found that this reduction in size aids in the folding of the box and assists it in lying flat when closed.

This and other changes may be made in the foregoing invention without department from the scope or spirit thereof and this invention is to be broadly construed and not to be limited except by the character of the claims appended hereto.

What is claimed is:

1. A paper box comprising a front and a back, sides connecting said front and said back, the upper parts of each of said front and said back constituting a first closure panel and a second closure panel respectively, side webs between said panels at the upper end of each of said sides, a first stiffener on said first panel and a second stiffener on said second panel, said first panel adapted to underlie said second stiffener when said box is closed, said second stiffener and said second panel having cut-out sections substantially in the form of triangles, one leg of each of said triangles being at an angle to the web adjacent thereto and spaced apart therefrom, said leg inclined away from said web adjacent thereto in the upward direction, a substantially centrally located, longitudinal slot in said first panel and said first stiffener, an opening in said second panel and said second stiffener, said opening being at least partly in register with said slot when said box is closed, a handle having at least one stop, said stop bearing against the underside of said first stiffener, said handle projecting through said slot and adapted to pass through said opening when said box is closed, said first stiffener and panel being folded substantially perpendicularly to said front, said webs being folded inwardly to abut said first panel and said second stiffener thereby forming points, said second panel and stiffener being folded substantially perpendicularly to said back to close said box.

2. A paper box according to claim 1 wherein said handle has two stops, each of said stops constituting an enlargement at or adjacent the lower end of each arm of said handle.

3. A paper box according to claim 2 wherein said opening is larger than the cross-section of said handle passing therethrough, a nose on said handle adapted to overlie said second panel when said box is closed, whereby said second panel is retained in closed position.

4. A paper box according to claim 2 wherein said opening is in register with said slot only at or adjacent the ends thereof.

5. A paper box according to claim 4 wherein there are a pair of said noses each overlying said second panel at one of said ends when said box is closed.

6. A paper box according to claim 1 wherein said first panel and said first stiffener have holes therethrough, said points passing through said holes to lie beneath said first panel.

7. A paper box according to claim 6 wherein said points lie beneath said first stiffener.

8. A paper box according to claim 1 wherein said second stiffener is shorter and narrower than said second panel.

9. A paper box according to claim 8 wherein both of said stiffeners are shorter and narrower than their respective panels.

10. A paper box according to claim 1 wherein there is provided a third stiffener on said front hingedly connected to said first stiffener.

11. A paper box according to claim 10 wherein said third stiffener is affixed to said front adjacent said webs only.

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