

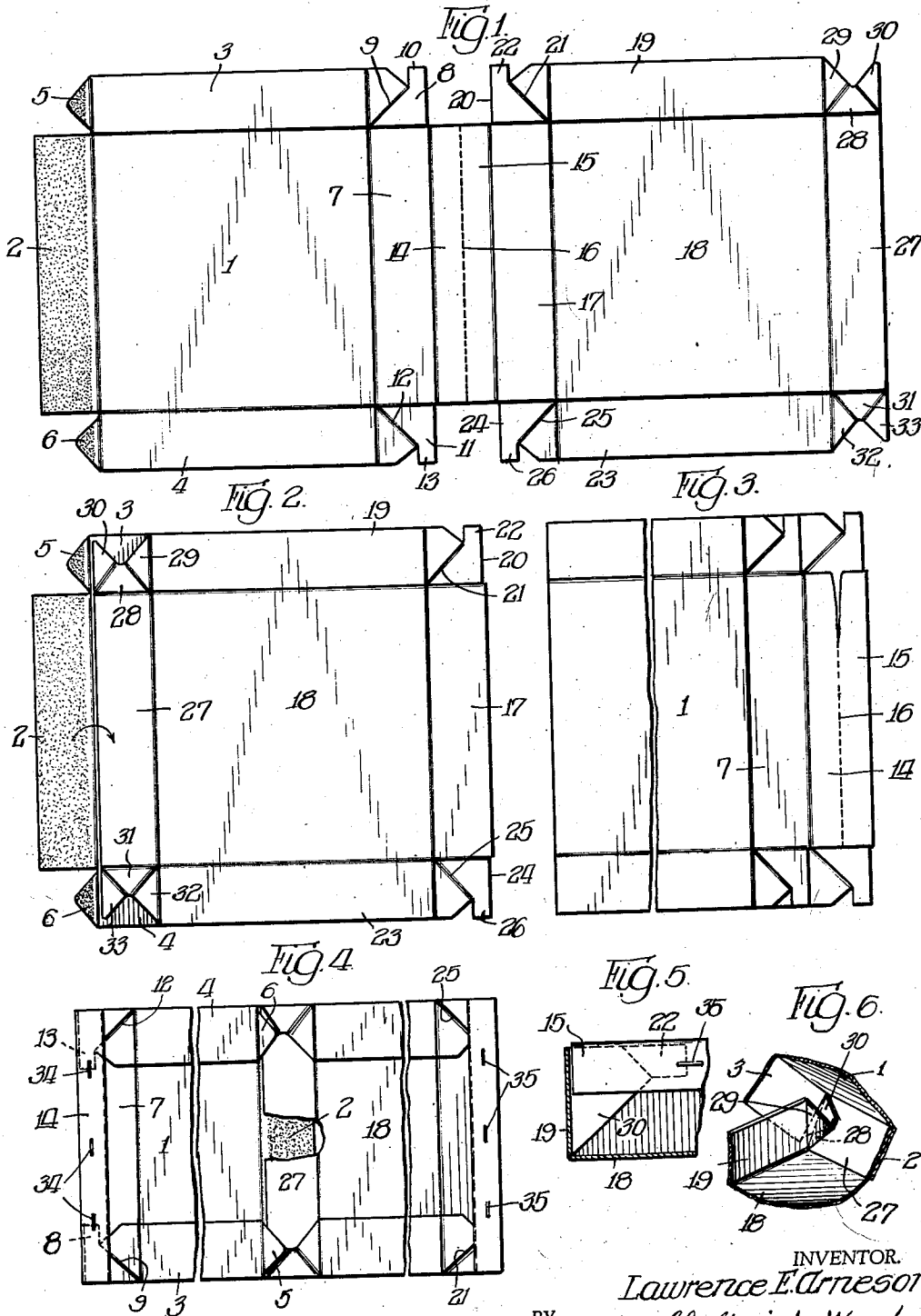
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CARTON AND METHOD OF MANUFACTURE

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CARTON AND METHOD OF MANUFACTURE

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The present invention relates to the construction of paperboard containers of the type having connected bottom and top portions which may be manufactured and shipped in flattened or collapsed condition and subsequently erected by the user while retaining the unitary relation between the top and bottom.

A principal object of the invention is the provision of an improved method of forming collapsible cartons of the connected bottom and top type.

An additional object of the invention is the construction of cartons of the type described from a single blank of paperboard, the blank being provided with complementary end portions which are secured together in lapped relation to form a reinforced connection between the bottom and top.

These and other objects will be evident upon a consideration of the following description of a preferred embodiment of the improved method and carton and by reference to the accompanying drawing, in which

Fig. 1 is a plan view of a blank formed in accordance with the invention;

Fig. 2 shows the blank in folded-over position in the process of producing the finished carton;

Fig. 3 is a view of the opposite side of the folded-over blank shown in Fig. 2, and illustrates a further step in the method of forming the box;

Fig. 4 is a view partially broken away of the formed carton in collapsed position, viewed from the inside of the carton;

Fig. 5 is a fragmentary view showing the end of the carton in set-up position; and

Fig. 6 is a fragmentary view showing the corner of the carton adjacent the connection between the top and bottom thereof.

For many carton uses it is desirable that the top and the bottom of a carton be connected together to avoid the necessity of having to assemble separate sections. Such cartons generally are formed of one piece of paperboard in which the connection between the bottom and top of the carton is a unitary section constituting the back side of the carton. In the case of cartons having separate tops and bottoms the vertical walls of the cartons are composed each of two sections of material, one on the top of the carton and one on the bottom thereof. This imparts a strength and rigidity to the carton which is desirable. Where the carton is composed of a single blank having a unitary connection between the top and bottom, it generally is customary to glue a separate strip of strength-imparting

paperboard to the inside of the back section forming the connection between the top and bottom of the carton. For several reasons this type of construction is not particularly desirable and in accordance with the present invention there is provided an improved method of forming cartons or containers having connected tops or bottoms in which the use of a separate strip of this sort is avoided.

In producing cartons in accordance with the present invention a piece of paperboard of the desired type is cut and scored to produce a blank of the type shown in Fig. 1. In this blank the section constituting the top of the carton is indicated at 1. It will be noted that this top is of substantially square shape, although any desired rectangular shape may be used.

To the end of the section 1 is attached along a score line an extension wall 2 which in the finished carton will constitute a real wall section. Extension 2 is provided with glue as indicated in the drawing.

Top section 1 also has side walls 3 and 4. On the outer ends of side sections 3 and 4 are provided triangular shaped glue tabs 5 and 6, respectively. These and other connected sections of the blank are joined as indicated along score lines.

To the inner end of the top section 1 is connected an extension wall 7 which in the finished carton constitutes the outer front wall of the carton.

Sections 3 and 7 are joined to an end locking strip indicated generally at 8, this section having a diagonal fold line 9 and a cut-away portion forming a tongue 10. On the opposite side of the top 1 there is attached to the front wall 7 and the side wall 4 an end locking section 11 having a diagonal fold line 12 and a cut-out portion forming the tab 13.

On the side of wall 7 opposite the top 1, there is provided an integral attaching strip 14 separated from the section 7 by means of a score line and joined to a complementary attaching section 15 along the perforated line 16. Sections 14 and 15 are of a combined width which corresponds to the width of the section 7.

On the opposite side of the attaching section 15 from the perforated line 16 is attached a wall 17 which in the finished carton constitutes the front wall of the bottom of the carton. This front wall section is, in turn, connected to the bottom section 18 which is substantially the same shape as the section 1.

The bottom 18 has connected to it on one side

a side wall section 19. Sections 19 and 17 are connected to an end attaching section 20 which has a diagonal fold line 21 and a tab 22 formed by cutting away a portion of the section 20.

On the opposite side of bottom 18 there is provided a side wall 23. To the front wall 17 and side wall 23 is connected an end attaching section 24 having a diagonal fold line 25 and a tab 26 similar to tab 22.

The bottom member 18 has attached to its side opposite the wall 17 a wall 27 which in the finished carton constitutes the rear wall of the bottom section.

To side wall 19 and rear wall 27 is attached a three section securing member by which the side walls 3 and 19 are locked together. This three section securing member is composed of a triangular section 28 connected directly to the wall 27, a second triangular section 29 connected directly to the wall 19 and a third triangular tab 29 connected to one side of the section 27, each of the sections being separated by a score line.

On the opposite side of the carton the end wall 27 and side wall 23 likewise are secured to a three section attaching portion by which the walls 23 and 4 are joined together. One of the sections is indicated at 31 as constituting a triangular portion attached to the wall 27. Another of the sections is indicated at 32 as being attached directly to the wall 23, while the third section is shown as a free triangular tab 33 connected to one side of the section 31.

After cutting and scoring the blank shown in Fig. 1 the carton is assembled by folding the bottom section over along the score line between the attaching strip 15 and the front wall 17 of the bottom member. The position resulting from this folding-over operation is indicated in Fig. 2. Section 2 then is folded over and adhesively secured to the outer portion of section 27, the fold being indicated by the arrow in Fig. 2. Section 5 likewise is folded over and adhesively secured to the section 30, and section 6 is folded over and glued to the section 33. Since the combined widths of sections 14 and 15 are substantially the same as the width of the wall 17, this operation accurately registers the wall 27 with the wall 2 and the flaps 5 and 6 with the sections 30 and 33, respectively.

Completion of the gluing operation as described is followed by turning the blank over into the position shown in Fig. 3. In this position the perforated line between sections 14 and 15 is exposed and a further operation in the assembly of the carton includes the separation of sections 14 and 15 along the perforated line 16, as indicated in Fig. 3.

After the blank is torn along the perforated line 16 the sections are folded apart into open position so that the walls 2 and 27 now constitute the connection between the top and bottom, these walls being adhesively secured together in overlapped position.

The joined side walls 3 and 19 and the joined side walls 4 and 23 then are folded over against the insides of the top and bottom of the carton. To secure the side walls in position the attaching sections 14 and 15, which now are at opposite ends of the carton, are folded over the end locking sections 20 and 24 and 8 and 11, respectively. Section 14 is stapled in folded-over position to the front wall of the top section by the staples 34, one of which passes through the folded-over section 10 and another which passes

through the folded-over section 13, as indicated in Fig. 4.

Section 15 is stapled to the front wall of the bottom by the staples 35. One of the staples 35 passes through the tab 22 and another of the staples passes through the tab 26.

The stapling operation completes the formation of the collapsed carton which then is in the condition shown in Fig. 4.

To erect the carton from the position shown in Fig. 4 the joined side walls 3 and 19 and the joined side walls 4 and 23 are rotated into vertical position along with the end walls. Sections 8 and 20 are folded along the lines 9 and 21, and sections 11 and 24 are folded along the score lines 12 and 25. The vertical walls then are locked in position by engaging the end portions of sections 14 and 15 over sections 8 and 11 on one end and 20 and 24 on the other end to form an interlock of the type shown in Fig. 5. This end construction is well known in the art and is not believed to require further explanation. It is to be understood that other types of end constructions may be employed if desired.

The carton is closed by folding the top over the bottom in such a manner that the side walls and end attached to the top telescope over the corresponding side walls and ends of the bottom. The overlapping relation of the elements connecting the side walls is shown in Fig. 6 in which the cover is shown in partially closed position with respect to the bottom. This type of fold is conventional and may be altered as desired.

It will be seen that the improved method of forming containers of this type includes registration of one portion of the blank constituting the rear wall of the bottom section with another portion of the blank constituting the rear wall of the top section and securing these sections together in overlapped relation. There also may be provided an attachment between the side walls of the carton adjacent the overlapped rear walls of the carton, means being provided for maintaining the side walls in vertical position when the top is folded over in telescoping relation with respect to the bottom. While there have been shown certain specific elements for providing this type of construction and for providing a satisfactory end lock, it will be understood that the invention is not confined to such specific construction. In fact, it is not necessary that the side walls be attached in this particular manner. Attaching flaps may be provided on one of the side walls for engagement with the inner ends of the other side walls only when the carton is closed to provide the desired stability. These various changes which may be made in the invention without departing from the scope thereof are intended to be included in the appended claims.

I claim:

1. The method of forming a container having attached bottom and top sections, which comprises producing a blank having integral top and bottom sections provided with outer rear wall sections and being connected together by front wall sections and two locking strips having a combined width substantially equal to the width of one of said front wall sections, folding said blank along the division between one of said locking strips and one of said front walls, securing said rear wall sections together in overlapped relation, and severing said blank between said locking strips.

2. The method of forming a container having attached bottom and top sections, which comprises producing a blank having integral top and bottom sections provided with outer rear wall sections and being connected together by front wall sections having adjacent locking strips with a combined width substantially equal to the width of one of said front wall sections, folding said blank along the division between one of said locking strips and one of said front walls, securing said rear wall sections together in overlapped relation, severing said blank between said locking strips, and attaching each of said locking strips to its respective front wall.

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