

June 14, 1938.

G. A. MOORE

2,120,258

CONTAINER

Filed Oct. 14, 1935

2 Sheets-Sheet 1

FIG.1.

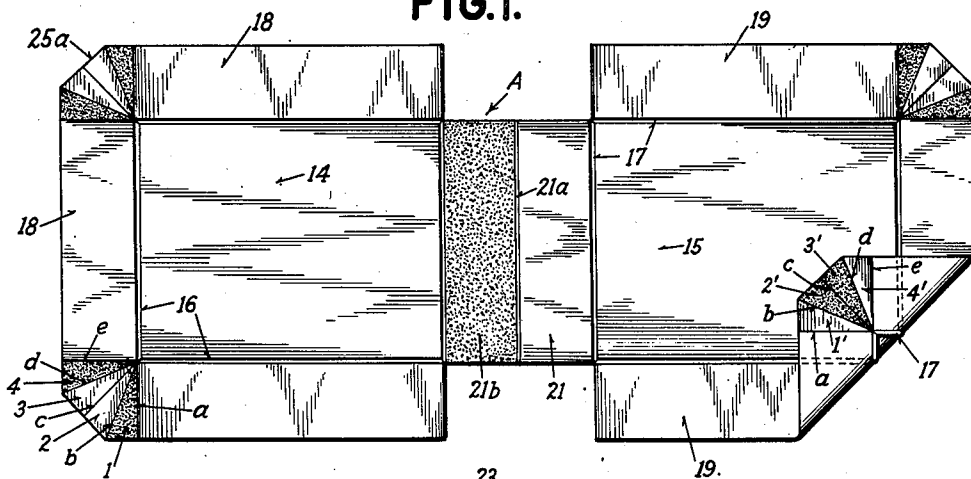


FIG.2.

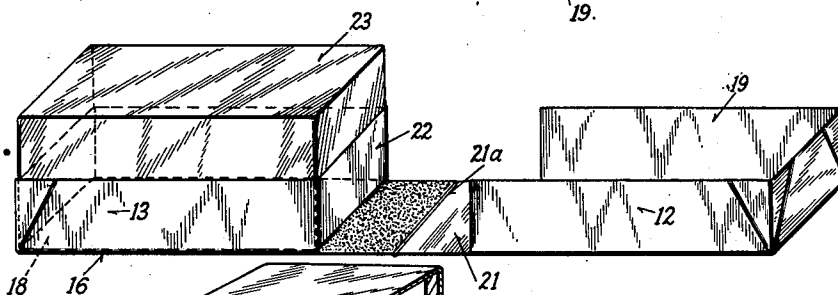


FIG.3.

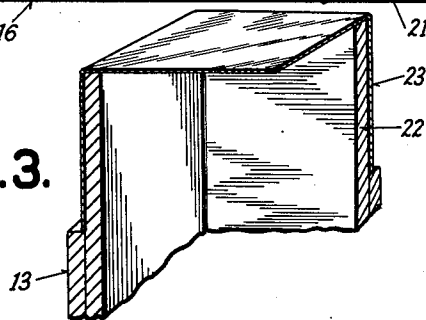


FIG.4.

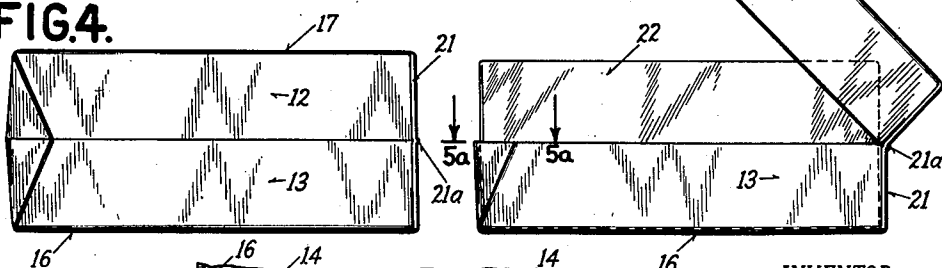


FIG.5.

FIG.5a

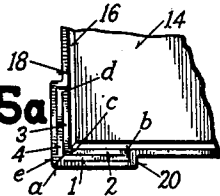
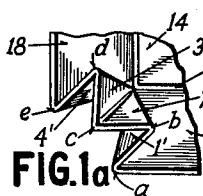


FIG.1a



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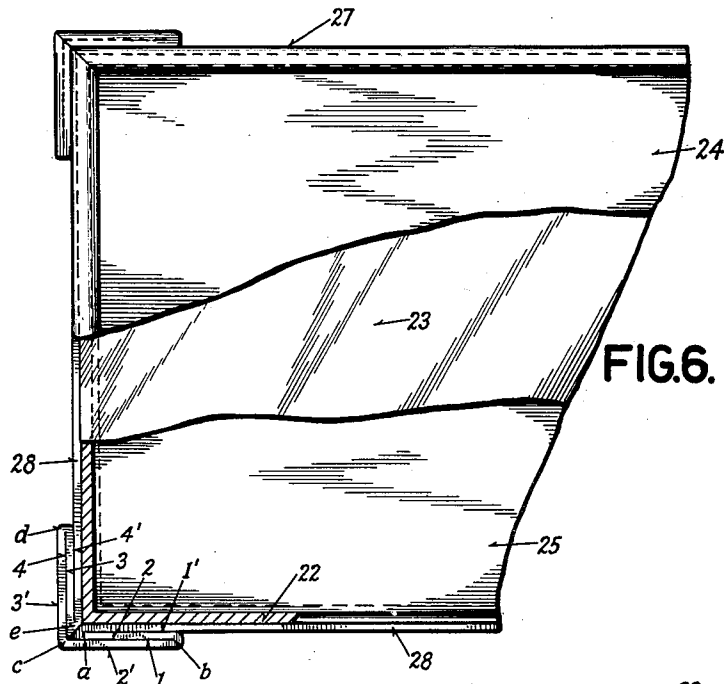


FIG. 6.

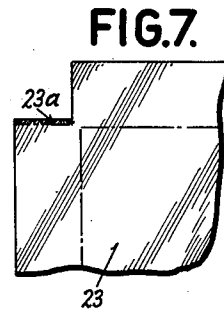


FIG. 7.

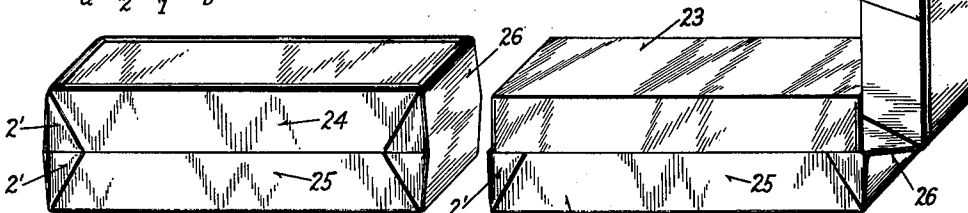


FIG. 8.

FIG. 9.

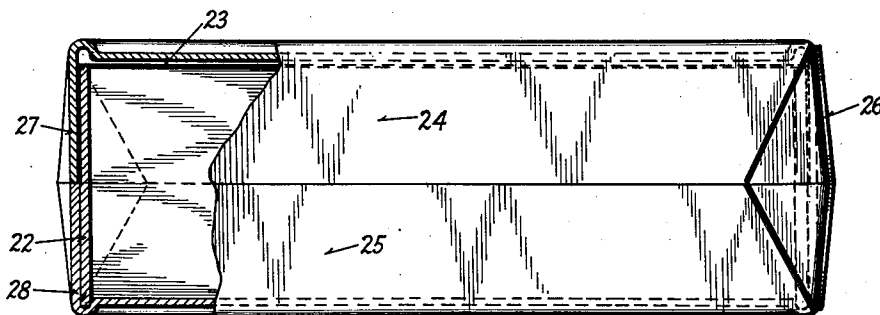


FIG. 10.

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UNITED STATES PATENT OFFICE

2,120,258

CONTAINER

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Application October 14, 1935, Serial No. 44,856

7 Claims. (Cl. 229-14)

This invention relates to containers or recep-
tacles and more particularly to such articles hav-
ing angular corners and constructed of foldable
material.

5 One of the objects of the present invention
is to provide a novel seamless flanged article
formed of a single blank of material.

Another object of the invention is to provide a
novel rectangular receptacle adapted to be made
10 from a single blank of material and one where-
in the corners are reinforced and stayed by folds
in the flanged portion thereof.

Still another object is to provide a novel flanged
container made from a single blank of fibrous
15 material and having folds at the corners there-
of, the folds at each corner being preferably sym-
metrically disposed with respect thereto and con-
stituting means for staying the same.

A further object is to provide a novel flanged
20 article having square corners, wherein a seam-
less, fibrous flange is formed integrally with the
base of said article.

A still further object is to provide a flanged
article adapted to be formed from a single blank
25 wherein the corners are formed by folding the
flanged portion of said article in a novel manner.

A still further object is to provide a novel
fiber container which may be readily and inex-
pensively manufactured from a flat blank by
30 drawing and pleating the marginal portion of
said blank to form a seamless flange having re-
inforced corners.

Another object is to provide a container com-
prising cooperating top and bottom flanged sec-
35 tions adapted to be formed by folding the mar-
ginal portions of a single blank in a novel man-
ner.

Another object is to provide a novel container
which is so constructed as to render the walls
40 thereof impervious to air and moisture.

Another object is to provide a container con-
structed in a novel manner whereby lighter and
less expensive materials may be employed with-
out reducing the strength and durability thereof.

45 The above and further objects and novel fea-
tures of the present invention will more fully
appear from the following detailed description,
which is to be read in connection with the ac-
companying drawings. It is to be expressly un-
50 derstood, however, that the drawings are for the
purpose of illustration only and are not designed
as a definition of the limits of the invention, ref-
erence being primarily had for this purpose to
the appended claims.

55 In the drawings, wherein like reference char-

acters refer to like parts throughout the several
views,

Fig. 1 is a development of a blank which may
be employed in constructing a container in ac-
cordance with the present invention;

Fig. 1a is a perspective view showing one cor-
ner of the blank of Fig. 1 in partially folded
position;

Fig. 2 is a perspective view of a container em-
bodying the present invention showing the same
10 in full open position;

Fig. 3 is an isometric view, partly in section
and with parts broken away, of a corner of the
left-hand portion of the container, as seen in
Fig. 2;

Fig. 4 is a side elevation of a container con-
structed from the blank of Fig. 1;

Fig. 5 is a similar view showing the container
in partially opened position;

Fig. 5a is a partial plan view, taken along the
line 5a-5a of Fig. 5, illustrating the construc-
20 tion of a corner of the container;

Fig. 6 is a top plan view, partly in section and
with parts broken away, of a second embodiment
of the invention, the sections being taken along
25 two horizontal planes, the lower plane contain-
ing the upper edge of the lower section of the
container;

Fig. 7 is a detail view showing one corner of a
blank which may be employed in sealing one sec-
30 tion of the container;

Fig. 8 is a perspective view of said second em-
bodiment;

Fig. 9 is a view similar to Fig. 8, showing the
container in open position; and

Fig. 10 is a side elevation of said second embodi-
ment, with parts broken away, and partially in
section.

One embodiment of the present invention is
illustrated in Figs. 1 to 5a, inclusive, by way of
40 example, in the form of a rectangular container
suitable for the packaging of cigarettes. Con-
tainers of the general character shown, particu-
larly those adapted and intended to be carried
in one's pocket for a considerable period before
45 the contents are completely used, are invariably
subjected to stresses tending to crush the same,
the greatest stresses being placed on the corners
thereof. In packages heretofore provided, the
corners have been comparatively weak because of
50 interruptions or seams in the flanged portions
thereof at or adjacent said corners, thus per-
mitting the same to be easily broken open or
crushed and thereby causing damage to or per-
mitting the escape of the contents of the pack-
55

age. The present invention comprehends a container wherein the flanged portion thereof is integral with the base of the container and is not broken or interrupted at the corners, thus obviating the necessity of a seam at or near said corners, and accordingly rendering the same impervious to air and moisture as well as preventing escape of the contents through an imperfect or loosened seam.

In the form shown, a box having a flanged top or upper section 12 and a flanged bottom or lower section 13, adapted to cooperate with each other to constitute a complete container or enclosure, is formed by folding a single flat blank A, composed of fibrous or other foldable material, in a novel manner either by hand or suitable machinery. Blank A comprises two spaced areas 14 and 15 having the same shape and dimensions, the former constituting what may be referred to as the bottom of the lower section 13 of the container and the latter the top of the upper section 12. Areas 14 and 15 are preferably defined by scores or ribs 16 and 17, which may be impressed into the blank at the same time that said blank is cut to the desired size and shape. Ribs 16 and 17, although not essential elements of the present invention, are preferably provided for the purpose of facilitating the folding of blank A and to stiffen and strengthen the completed container. Said ribs preferably extend outwardly, thus forming complementary grooves interiorly of the container.

Bottom 14 and top 15 are provided with marginal strips 18 and 19, respectively, formed integrally therewith and extending around three sides thereof, each of said strips being of uniform width throughout its length. The strips or marginal portions 18 and 19 are adapted to be folded at right angles to said top and bottom to form three of the side walls of the container sections 12 and 13, and may be of any suitable width depending upon the desired vertical dimension of the container. It will be understood that marginal strips 18 and 19 may be of equal or unequal widths, depending upon the desired relative sizes or capacities of sections 12 and 13.

When the marginal portions 18 and 19 of blank A are turned up or drawn into flanged relation with parts 14 and 15, there is an excess of material at each of the corners about which said portions extend that, in accordance with the present invention, is folded in a novel manner whereby reinforced, seamless corners are formed, and the container given a neat and pleasing appearance. In the folding of the blank, a development of which is shown in Fig. 1, the four outer corners thereof are creased and folded along lines *a* and *e*, which represent intersecting edges of bottom 14 or top 15 extended, and define the corner areas of the marginal portions 18 and 19. Said corner areas are also creased along three other lines *b*, *c* and *d* contained within the right angle between lines *a* and *e*. Creases *a* to *e*, inclusive, all emanate and diverge from the corners of part 14 or 15, and divide the corner areas *a*, *e* into four triangular sectors 1, 2, 3 and 4 having substantially equal angles at the common or inner vertex thereof. Preferably, the tips of the corners of blank A are cut off along lines making an angle of 45° with the sides of said blank before the folding operation in order that the upper edges of the corner folds hereinafter described will be flush with the upper edges of the container when said folds are in position. The corner tips may, however, be retained and fold-

ed over the upper edge of the container, if desired.

The folding of the corners is preferably carried out simultaneously with the folding of side walls 18 and 19 along lines or scores 16 and 17, respectively, and the corner folds may be made to extend into the container and engage the inner surfaces of the side walls or the same may extend exteriorly thereof and engage the outer surface of said side walls. When interiorly folded corners, as illustrated in Fig. 5a, are desired, creases *b* and *d* are moved upwardly and inwardly ahead of crease *c* during the folding operation (Fig. 1a), and the sector surfaces 1' and 3' on the outer surface of the corner area of the marginal portion of blank A move into engagement with sector surfaces 2' and 4', respectively, as creases *a*, *c* and *e* move toward each other and into a vertical position. At the same time, creases *b* and *d* are caused to diverge so as to bring sector surfaces 1 and 4 on the inner surface of blank A into engagement with the adjacent inner surfaces of side walls 18 or 19 at opposite sides of the corner which is being formed. A triple-ply, symmetrically formed, seamless corner is thus provided which is superior to corners heretofore provided in fiber packages, both in strength and durability as well as in ability to retain fine-grained contents.

In order to render the corners formed in the above manner permanent, and to hold the side walls in folded position, a suitable adhesive is applied to at least one of each of the engaging surfaces of the corner folds. Preferably, a thermoplastic, moisture-proof adhesive, which may be activated by heat and pressure without the application of a solvent to render the same tacky, is employed. In a container wherein the corner folds extend interiorly thereof, as above described, said adhesive is applied to interior sector surfaces 1 and 4 and to exterior sector surfaces 2' and 3', as illustrated in Fig. 1. Heat and pressure may be applied to the folded corners by suitable heating elements associated with cooperating die members, which may be employed in carrying out the folding operation, thereby causing the adhesive to become tacky and flow sufficiently under pressure to fill up the pores or crevices of the engaging surfaces and accordingly substantially weld the same into intimate contact with each other.

If it is desired to provide a smooth inner wall surface in the container, the side walls 18 and 19 may be pressed outwardly along the line of creases *b* and *d*, as shown at 20, to form triangularly shaped recesses for receiving the folds 1, 2 and 3, 4.

The sections 12 and 13, formed in the above manner with a perpendicular seamless flange on three sides thereof, have the fourth sides of the same joined by a strip 21 constituting the end of the container, said strip having one dimension equal to the width of the areas 14 and 15 and its other dimension equal to the sum of the widths of marginal strips 18 and 19. If desired, a score or rib 21a may be provided in end portion 21, preferably at the juncture of the upper and lower sections of the container, to facilitate the use of said end portion as a hinge when opening the container in the manner shown in Fig. 5.

In the illustrated embodiment, a liner 22, having outer dimensions slightly less than the inner dimensions of the container parts 12 and 13, is inserted into the latter, the lower edge of said liner being adapted to project into the pe-

ripheral score or groove 16. Liner 22 preferably projects above the upper edge of the lower section of the container to an extent equal to or slightly less than the width of flange 19 of the upper section 12, and is adapted to be enclosed by said upper section when the latter is folded over to cooperate with lower section 13 to form a complete enclosure, as shown in Fig. 4. A suitable adhesive, preferably a thermoplastic adhesive, as seen at 21b, may be interposed between the side and end walls 18, 21 of section 13 and liner 22 to secure the latter in position and, if desired, a cover 23 (Figs. 3 and 7) of foil, cellophane or other suitable material may be applied to the upwardly projecting portion of liner 22 to provide additional protection for the contents of the container and increase the imperviousness of the same to the entrance of air and moisture. A suitable solvent activated adhesive may be employed on the overlapping portions 23a of cover 23 to hold the same in folded position over the upper end of liner 22, an adhesive adapted to be activated by cellosolve being preferred.

It will be noted that all four corners of sections 12 and 13 may be of the folded type, if desired, thereby providing a continuous uninterrupted flange about the entire periphery of each of said sections. To form the container in this manner, the marginal or flange portions 18 and 19 need only be extended toward the center of blank A a distance equal to the width of said flange portions.

A second embodiment of the invention, wherein externally folded corners, as referred to above, are employed, is illustrated, by way of example, in Figs. 6 to 10, inclusive, in the form of a two part container. As shown, the container comprises two sections, an upper section 24 and a lower section 25, each of said sections being formed from a separate blank each of the blanks employed being rectangular in shape except that the tips of all four corners are preferably sheared in the manner shown at 25a in Fig. 1. The corners of the blanks are creased preparatory to folding along the same lines, *a* to *e*, inclusive, as shown and described in the first embodiment. The marginal portions around the entire periphery of the blanks are folded into perpendicular relation with the central portions thereof, the corners being folded in the manner hereinafter described to form the top and bottom cooperating sections 24 and 25. A liner 22, having a foil or cellophane covering 23, may be employed by inserting the same in the bottom section 25 in the same manner as described in connection with the first embodiment. A tape 26 joining adjacent end walls of the two sections of the container may be provided for pivotally securing said sections together so that the container may be opened in the manner illustrated in Fig. 9.

In the operation of folding the flanged corners externally of the container in the manner most clearly illustrated in Fig. 6, creases *b* and *d* tend to remain outside of the container as the same is being formed, said creases lagging, so to speak, the side walls and crease *c* as the latter move into a position normal to the central portion or area of the blank. Sector surfaces 1 and 3 are thus brought into engagement with sector surfaces 2 and 4, respectively. At the same time, creases *b* and *d* are caused to diverge, thereby bringing surfaces 1' and 4' on the lower face of the blank into engagement with the outer surfaces of side walls 27 or 28 on the opposite sides of the corner being

formed. Reinforced three-ply corners are thus provided and a smooth inner wall surface results without deforming the side walls 27 and 28 of the sections 24 and 25. The corner folds of the side walls may be held in folded position by a suitable adhesive which may be applied to surfaces 2 and 3 on the inner face of the blank employed and surfaces 1' and 4' on the outer face of said blank.

There is thus provided a novel flanged container or receptacle adapted to be formed from a single blank and wherein the flanged portion is seamless and also integral with the base of said container or receptacle, thereby rendering the walls thereof impervious to the entrance of air and moisture and constituting the same leak-proof unless the material itself is ruptured. A novel container is also provided wherein the corner areas of the marginal portion of the blank from which said container is formed are folded in a novel manner to form reinforced corners having three-ply wall portions at either side thereof, the folds being symmetrically disposed with respect thereto. The corners being thus reinforced and strengthened offer materially more resistance to crushing and consequent damage to the contents of the container than similar type containers heretofore provided without necessitating any increase in the quality, strength or thickness of the material employed. The novel container provided is also adapted to be readily and inexpensively manufactured in large quantities.

Although only two embodiments of the present invention are illustrated and described, it is to be expressly understood that the same is not limited thereto, but that various other forms of containers having varying sizes and shapes and embodying the invention may be provided, as will now be apparent to those skilled in the art. Reference will be primarily had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. A container of the class described having a base portion, integral side walls, and seamless corners, said base, side walls and corners being formed from a single blank and said side walls having folds therein flush with the inner surface of said side walls and having the upper edges thereof flush with the upper edges of said side walls, means for securing said folds to each other and to said side walls, and ribs joining said base and side walls to stiffen and strengthen the container.

2. A fiber article comprising a substantially rectangular blank scored on lines parallel to each edge thereof and equidistant therefrom to form a rib and complementary groove, the area enclosed by said rib constituting the base portion of the article and the marginal portion of the blank being folded along the outer edge of said groove to form a continuous flange having two folds of equal proportions at each corner and symmetrically disposed with respect thereto, and a liner having the lower edges thereof extending into said groove and projecting above the upper edges of said flange.

3. A fiber container comprising a bottom section and a top section, a seamless flange constituting all but one side wall of each of said sections and integral with the central portions of said sections, a liner disposed in one of said sections and extending into the other, and an end wall of said container extending between

said central portions and integral with both of said sections, said end wall constituting hinge means for said sections.

5 4. A rectangular fiber container comprising a top section and a bottom section, each of said sections having a seamless peripheral flange, said flange being constituted by the marginal portion of a blank and having folds at each corner symmetrically disposed with respect to said corner, 10 a liner disposed within said bottom section and extending into said top section, and a tape constituting a hinge joining adjacent ends of said sections.

15 5. A container of the class described having a base portion, side walls integral with said base portion and seamless corners, said base, side walls and corners being formed from a single blank and said side walls having folds therein constituting reinforcements for said corners, and 20

ribs joining said base and side walls to stiffen and strengthen the container.

6. In an article formed from a blank comprising fibrous material, a base portion and a flange integral with said base portion, said flange having a seamless corner construction comprising a pair of folds engaging the two sides of the corner and secured thereto, and ribs joining said base and flange to stiffen and strengthen the container. 10

7. A container comprising fibrous materials including a top section and a bottom section, each of said sections having a seamless peripheral flange, said flange being constituted by the marginal portion of a blank and having folds at each corner symmetrically disposed with respect to said corner, and a liner disposed within said bottom section and extending into said top section. 15

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