

April 12, 1927.

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1,624,626

BAG OR LINING

Filed Feb. 9, 1923

3 Sheets-Sheet 1

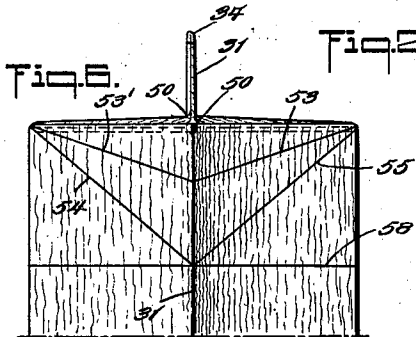
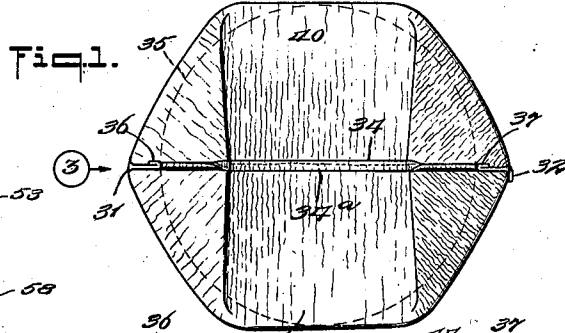
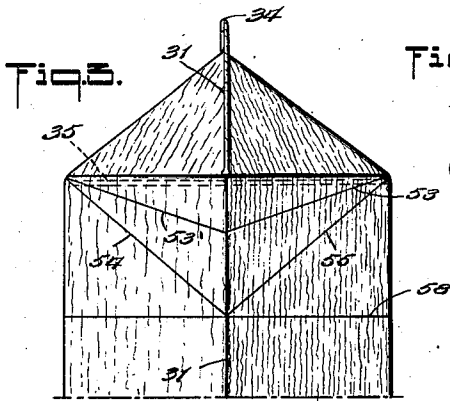


Fig. 2.

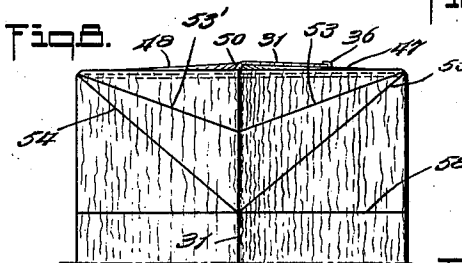
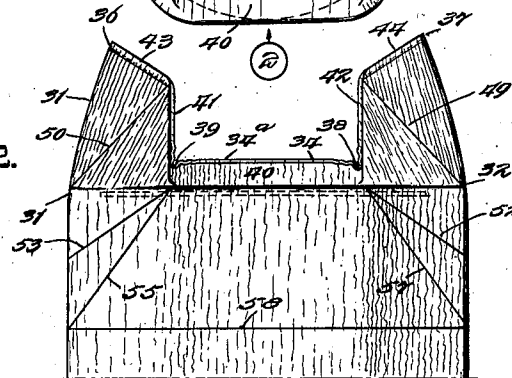


Fig. 4.

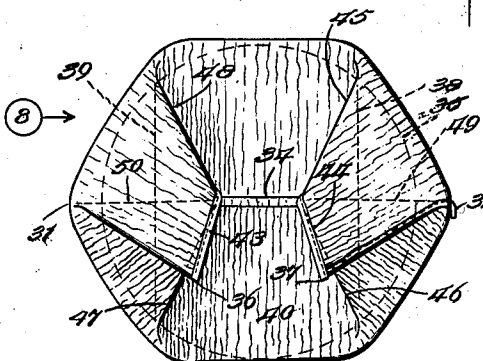
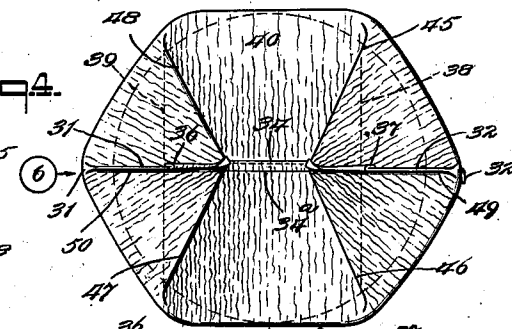
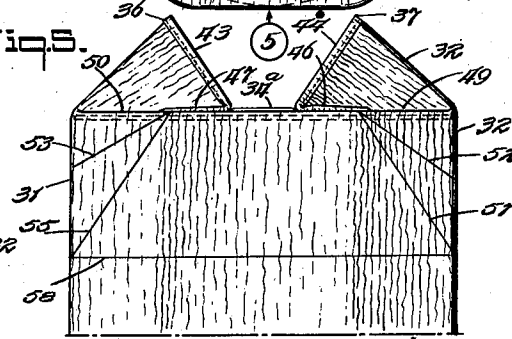


Fig. 8.



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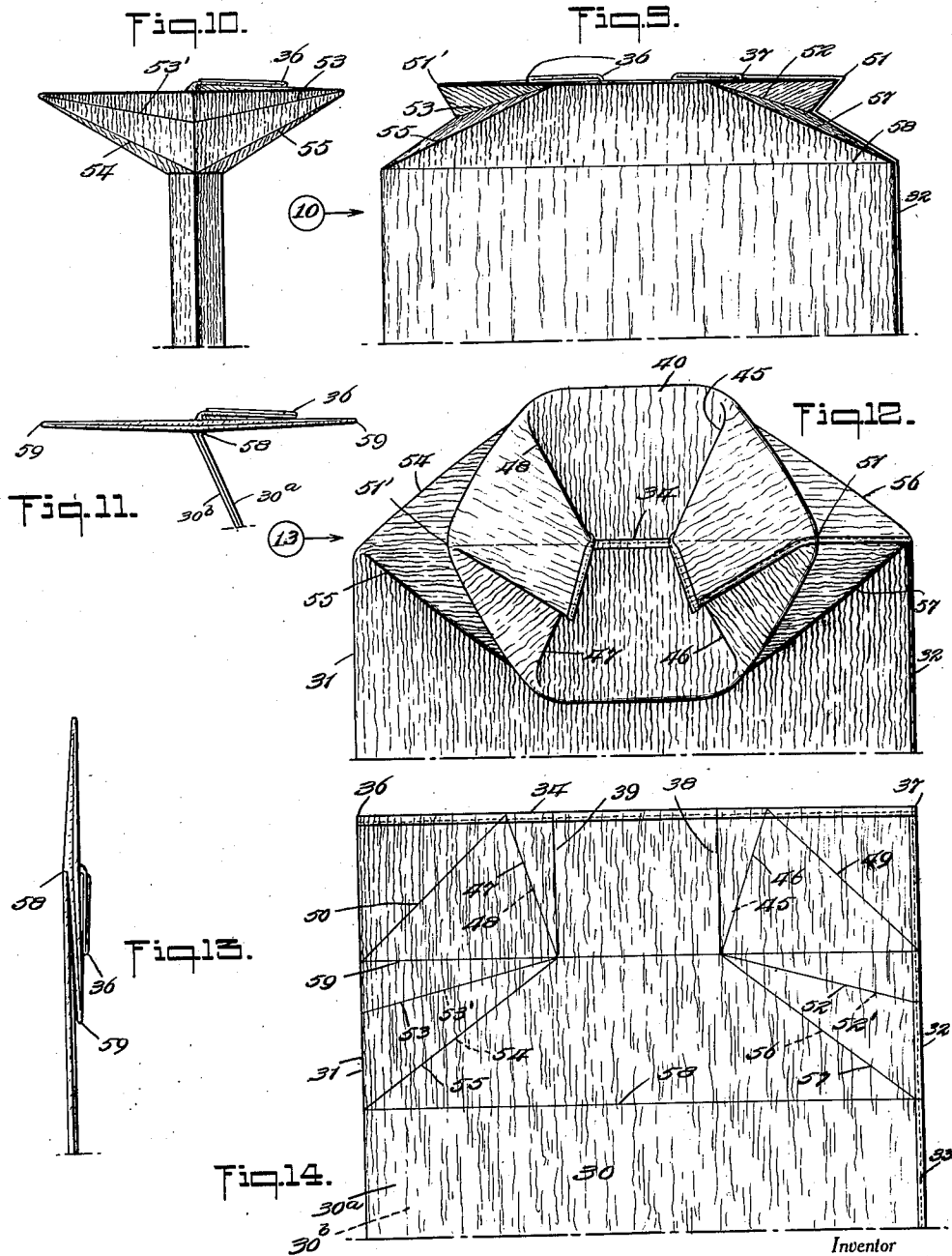
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BAG OR LINING

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3 Sheets-Sheet 3

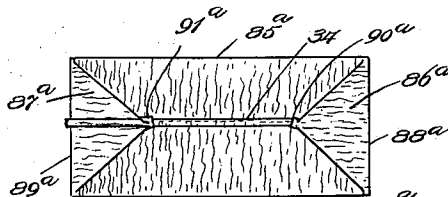
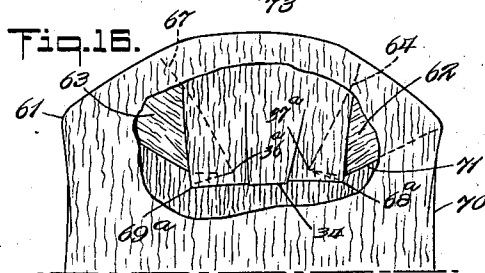
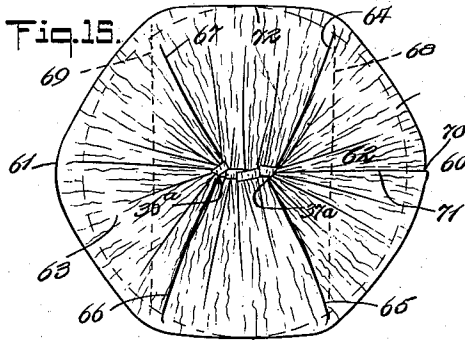


Fig. 20.

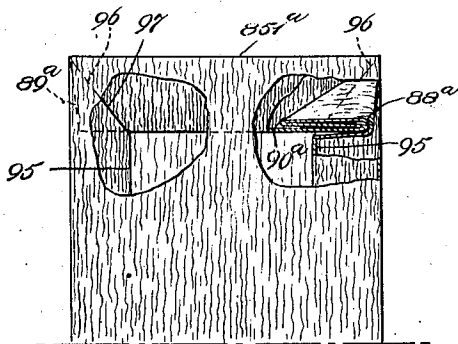


Fig. 21.

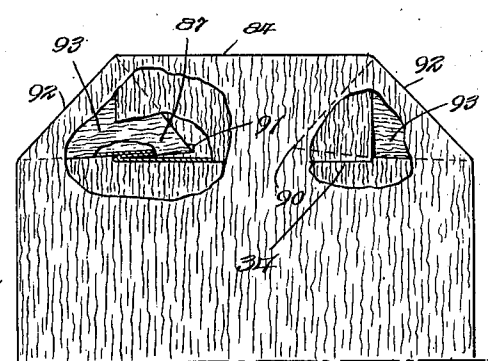
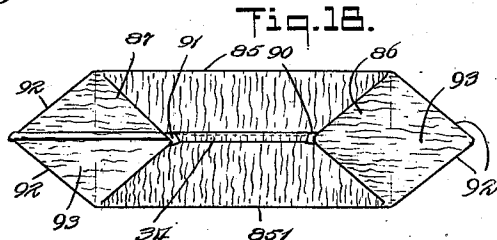
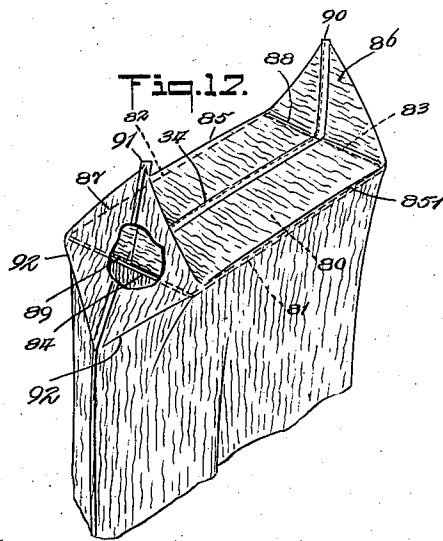


Fig. 19.

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UNITED STATES PATENT OFFICE.

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BAG OR LINING.

Application filed February 9, 1923. Serial No. 617,938.

This invention relates to paper bags adapted and designed for use as linings for barrels, drums, kegs, boxes and other like shipping containers.

5 The invention consists of a crinkled paper bag as an article of manufacture having the features hereinafter pointed out.

10 The invention seeks to provide a crinkled paper lining in the form of a bag having a formed flat bottom which may be produced more rapidly and more economically than heretofore, and which shall have the capacity to stretch or expand not only throughout the body of the bag, as heretofore, but shall also have the capacity to stretch or expand around the periphery of the formed flat bottom.

15 In the practical art, as heretofore known, a crinkled paper lining for barrels has been used consisting of a tube open at both ends and without any bottom at all. To take the place of a bottom in that tubular lining, a separate sheet of paper, entirely detached from the tube, was spread over the bottom of the barrel before the tube was inserted therein. There has also been known in the prior art a crinkled paper barrel lining provided with a round flat bottom. In this latter case, the bottom was formed by a separate sheet of paper cut into the form of a circular disk, and then sewed around its periphery to one end of the tubular body portion. This latter form of bag, because of its round, flat, sewed-in bottom, has a utility peculiar to itself and not possessed by the tubular lining first above mentioned. It was expensive to make, however, because of the requirement to separately cut out the round bottom piece and then sew it to the bottom of the body portion. It had also the further objection that it possessed little or no capacity to stretch around the periphery of the bottom owing to the stitches which united the bottom with the body portion, so that the essential capacity of the paper to stretch under strains incident to its use, which was present in the body of the bag, was not present around the periphery of the bottom. This lack of stretchability around the periphery of the bottom made the bag liable to rupture when under strain in the locality stated, and such strain occurred not only in filling the barrel, but also thereafter by the shifting of the material within the barrel

incident to handling. Such lack of stretchability also made it impractical to stretch or expand the periphery of the flat bottom, as occasion might require, so as to always make it fit snugly into the bottom corner of the barrel formed by its bottom and body portions.

The present invention provides a crinkled paper bag possessing all the advantages of the bag having the flat sewed-in bottom just above referred to, and having the further advantages of greater economy in production and stretchability throughout the periphery of its flat formed bottom.

20 In the accompanying drawings, there are shown for the purpose of illustration, several of the forms of bags which are within the purview of the present invention and the methods employed in making up these bags.

In the drawings:

Fig. 1 is a plan view, Fig. 2 is a side view taken in the direction of the arrow 2 of Fig. 1, and Fig. 3 is an end view taken in the direction of the arrow 3 of Fig. 1, said views showing a round bottom bag or lining with the bottom partly formed according to one method which the present invention contemplates;

Fig. 4 is a plan view, Fig. 5 is a side view taken in the direction of the arrow 5 of Fig. 4, and Fig. 6 is an end view taken in the direction of the arrow 6 of Fig. 4, said views showing the round bottom bag with the bottom more completely formed than in Figs. 1, 2 and 3;

Fig. 7 is a plan view, Fig. 8 is a side view taken in the direction of the arrow 8 of Fig. 7; said views showing the completely formed round bottom;

Fig. 9 is a side view illustrating this round bottom bag with the side walls of the bag partly collapsed;

Fig. 10 is a view taken in the direction of the arrow 10 of Fig. 9;

Fig. 11 is a view similar to Fig. 10, but showing the sides of the bag completely collapsed;

Figs. 12 and 13 are views illustrating the round bottom bag completely collapsed for shipment;

Fig. 14 illustrates a blank or a flat bag;

Fig. 15 is a view of the bottom of a round bottom bag or lining folded in a slightly different manner;

Fig. 16 is a side view of the bag such as shown in Fig. 15, collapsed for shipment, with parts broken away;

Fig. 17 is a perspective view of one form of box lining showing it partly formed;

Fig. 18 is a view showing the completely formed lining of Fig. 17;

Fig. 19 is a side view of the lining shown in Fig. 18, collapsed for shipment, with parts broken away;

Fig. 20 is a view of the bottom of a slightly different form of box lining, and

Fig. 21 is a side view of the lining shown in Fig. 20, collapsed for shipment, with parts broken away.

Reference is now made to the bag and method illustrated in Figs. 1 to 14 inclusive.

The blank used in carrying out this method is illustrated in Fig. 14 in the form of a flat bag 30 which may be made by folding the opposite sides 30^a and 30^b of a sheet of paper along the line 31 to bring the opposite margins together along the edge 32. These margins are then fastened together either by stitching or pasting, as indicated at 33 and the unformed bottom of the flat bag blank is produced by fastening together the doubled over sides of the blank as indicated at 34. This may be done either by pasting, stitching or in any other suitable manner. A blank having the same configuration and suitable for the present purpose can be made by having the edge 34 arcuate, or by having the seam 33 arranged one-half way between the edges of the flattened bag, or the edge opposite that denominated 34 can be closed up, whereupon the bottom of the bag would be along the edge designated 31. Such a bag blank possesses an unformed bottom. It does not possess a formed flat bottom. For the sake of uniformity in the drawings, all the bags are illustrated as being made from a flat bag blank fashioned in the manner illustrated in Fig. 14.

The flat bag blank 30 is opened out and passed downwardly over a former 35, illustrated in dotted lines in Figs. 1 to 8 inclusive. This former may be made in the form of a round table top. The bag is preferably put on the former so that the seam 34 in the "bottom" of the flat bag is directly above the center of the former. The blank is then forced against the former so as to bring the central portion 34^a of the seam 34 against the former. At the same time the paper is brought against a portion of the periphery of the former, forming a crease 59 (shown in Fig. 14). The condition of the bag at this time is illustrated in Figs. 1, 2 and 3, where it will be noted that the material above the former is a continuation of the material of the side walls. It also appears that the excess end portions or corners 36 and 37 of the blank have been drawn in-

wardly toward one another a slight distance and the bottom seam 34 is now divided into several sections. The operator then moves the hands or suitable tools along the seam 34 to about the region indicated by lines 38 and 39 thereby providing a central zone 40 which is held flat upon the top of the former. The seam 34 now has the configuration shown in Fig. 2, the portion 34^a being adjacent the former, other portions 41 and 42 standing uprightly away from the former and the remaining portions 43 and 44 extending obliquely toward the corners 36 and 37.

The operator then folds the material along the lines 38 and 39 to the position indicated in Figs. 4, 5 and 6. The material is now creased along the lines 45, 46, 47 and 48 and the excess end portions or corners 36 and 37 of the original flat blank are brought closer together. The material between the creases 45 and 46 is now pressed down toward the former and the operator so regulates and controls the pressure that a crease 49 is formed, which extends from the point of intersection of the creases 45 and 46 out to the side 32 of the original blank. A corresponding crease 50 is formed on the opposite side of the bag. This is shown most clearly in Fig. 6.

The portions 41 and 42 of the bottom seam 34 have now been doubled down and laid against the intermediate portion 34^a of this seam, while the portions 43 and 44 extend upward at a considerable angle. The round bottom of the bag is completed by folding the remaining excess end portions in these projecting corners down to the position indicated in Figs. 7 and 8, thereby completing the formation of infolded free flaps which fall short of the center of the bag bottom. These flaps, which are made from the spread out closed corners of the blank, have a lower side which continues over to the side wall of the bag, while the upper side extends only so far as the folds 38 and 39.

The operator then folds the opposite sides 51 and 51' of the bag, as indicated in Fig. 9, thereby making creases along the lines 52, 52', 53, 53' and bringing the material between these creases in under the former 35. The bag with the formed bottom is withdrawn from the former, the latter mentioned folds being temporarily straightened out. The bag may then be folded to the position indicated in Fig. 11, in which the opposite sides 30^a and 30^b are brought close together and at an angle to the formed bottom. When this is done, creases 54, 55, 56 and 57 are formed in the material of the bag. These creases extend from the opposite edges 31 and 32 of the original flat blank to a point quite close to the outer end of the creases 45, 46, 47 and 48. The bag is then

folded along the line 58 to the position indicated in Figs. 12 and 13 in which the formed flat bottom and the remainder of the bag are close together and in position for shipment. The bag has been collapsed into a flat object and the folds of the formed bottom retained, so that the bag can be easily opened out and used for the desired purpose.

If the bag formed up as shown in Figs. 12 and 13 be returned to the position of a flat blank, as it was before the formed flat bottom was produced, traces of the creases will remain. The same reference characters are used in all the figures to indicate these creases and the creases have been indicated in Figs. 1 to 12 even though they would not appear in the ordinary making of the bag with the formed flat bottom out of the original flat blank. These creases are indicated in the position that they would assume were the previously completed bag unfolded and then refolded, and for this purpose the drawings may be considered as illustrating such a refolding process in addition to the original converting of the blank into a flat bottom bag.

Reference is now made to the round bottom bag illustrated in Figs. 15 and 16. A blank, which may be the same as the blank suggested for use in connection with the process outlined in Figs. 1 to 14 inclusive, is spread open and drawn over a former 35 as before, bringing the bag to a position about like that illustrated in Fig. 2. The operator, instead of carefully folding the paper as outlined above, simply passes the hands or suitable tools inwardly from the opposite edges 60 and 61 and presses the excess projecting end portions or closed corners of the blank down toward the former. This produces infolded flaps 62 and 63 having outside or marginal folds 64, 65, 66 and 67 located in somewhat the same position as the folds 45, 46, 47 and 48, as previously described. These outside folds converge toward the corners 36^a and 37^a, which are brought closer together than the corners 36 and 37, and terminate adjacent the line connecting the point 60 and 61.

The excess paper of these flaps which lies between the marginal folds will naturally be brought into a plurality of irregularly formed folds, indicated by the heavier lines converging toward the point of intersection of the marginal folds. The flaps, like those previously described, are free, and have lower sides which extend over to the side walls of the bag, and upper sides which extend to transverse folding lines 68 and 69, corresponding approximately to the lines 38 and 39. While these lines 68 and 69 are shown straight in the drawing, it is to be understood that they indicate the general location of the irregular line of fold which

will be formed when the material is crushed down toward the former. The side seam of the original flat blank (corresponding to the seam 33 of Fig. 14) is indicated in Fig. 15 at 70 and 71. It will be noted that a portion of this seam extends from the periphery of the formed bottom in toward the corner 37^a where the bottom seam of the original blank commences. This bottom seam is in a number of irregular folds which extend across the central portion of the bottom between the folding lines 68 and 69 and inside the infolded flaps.

In making the bag according to this method, a crease is formed in the material about the edge of the former 35. After the operator has formed up the bottom in the manner above described, the bag is removed from the former with the formed bottom intact in such a manner that the bottom is infolded as indicated in Fig. 16. This infolding preferably extends between the points 60 and 61 on a line substantially coincident with the bottom edge of the bag blank, and may be accomplished by grasping the upper and lower edges 72 and 73 of the formed bottom and pulling them up away from the former, while the central part of the formed bottom is held back. The collapsed bag now assumes a flat condition and is then ready for shipment, the folds and formed bottom being retained.

It is so shown in Fig. 16, parts being broken away. The portion 71 of the side seam of the original bag blank extends from the point designated 60 to the end 37^a of the bottom seam 34. This bottom seam extends back from the point 37^a to the corner 68^a where the central portion of the bag is doubled upon itself,—this point corresponding to a part of the folding line 68. The seam 34 then continues across this folded central portion of the bottom to the point 69^a (corresponding to 68^a) where it is folded back to the corner 36^a.

Figs. 17, 18 and 19 illustrate the making of a box lining in substantially the same manner as that in which the bag of Figs. 15 and 16 was made. In this case a rectangular former 80 is used which has a configuration conforming to that of the inside of the bottom of the box for which the lining is to be made. The former has longer parallel sides 81 and 82 and shorter ends 83 and 84. The flat bag blank of the type above described is drawn over the former so as to bring the bottom seam 34 across the center of the former and parallel to the edges 81 and 82.

The operator then creases the material along all, or merely a portion, of the edges 81 and 82 so as to define creases 85 and 85'. This leaves upstanding the excess projecting end portions 86 and 87 in the form of triangular flaps which must now be disposed of. They may be disposed of in either of

two ways. The drawing of the material across the top of the former will naturally bring about lines of fold 88 and 89 adjacent the ends 83 and 84 of the former. The up-
 5 standing flaps may be folded inwardly so as to bring the corners 90 and 91 down onto the seam 34. In this case, a more or less well defined crease will be formed in the material between the side of the bag and the
 10 upper surface of the infolded flaps. The flaps 86 and 87 may also be disposed of by turning them over and pressing them down against the former and bending them away from one another and down alongside the
 15 depending sides of the lining. In either case, the bag when in this condition has a formed flat bottom, with which it may be fitted into the bottom of a box of corresponding size.

20 The operator then collapses the bag in a manner similar to the collapsing of the bags shown in Figs. 15 and 16. This is done by bringing the parallel creases 85 and 85' toward one another and disposing of the flaps
 25 inside the doubled bottom, or outside it, depending upon which way the flaps were turned. When this is done, the creases 88 and 89 are retained, while the companion creases formed in the outside layer of material are straightened out. This condition
 30 is illustrated in Fig. 18. The completely collapsed bag, ready for shipment, is shown in Fig. 19. The flat object has the same width as the original flat bag blank from
 35 which it was made. Ancillary creases 92 are formed which extend from the sides of the collapsed bag up to the creases 85 and 85'. The material 93 included between the
 40 pairs of creases 92 together with the outside thickness of the flaps 86 and 87, is brought into a couple of free folds tucked in in the manner indicated.

When it is desired to open up this bag to form a lining, it is merely inserted inside
 45 the box and pressure supplied to open up the infolded tucked bottom.

The bag illustrated in Figs. 20 and 21 has a formed bottom similar to that illustrated in Figs. 17 to 19, and Fig. 20 may
 50 be considered as showing the completely formed bottom of the bag of Figs. 17 to 19.

For clearness, the same reference characters are used in showing this lining as were used in describing the lining of Figs. 17 to 19 with the subscript *a* added, it seeming unnecessary to repeat the descriptive matter. While the bag with the completely formed bottom is still on the former, the sides underneath the edges 83 and 84 of the former are tucked in and folded up underneath the former in somewhat the same fashion as indicated in Fig. 9 with respect to a round bottom bag. The bag is then removed from the former and the narrower side walls tucked in, the line of fold being illustrated

at 95. In doing this, diagonal creases 96 and 97 are formed in the material of the side walls, these creases extending from the corners of the triangular flaps 86 and 87 to meet the middle of the side wall at a point spaced from the folds 88^a and 89^a.
 70 The bag is then in the position indicated in Fig. 21, in which the creases 85^a and 85'^a are brought together to provide an infolding tuck at the bottom of the bag, the side tucks
 75 being collapsed.

In making up these articles from crinkled paper, the blank is generally made by folding a piece of crinkled paper on a line parallel with the crinkles, closing up the edges
 80 to form a tube and then closing one end of the tube to provide a flat bag. The direction of the crinkles is illustrated by the short wavy lines in the drawings, and it is obvious that the bottoms and side walls
 85 of bags formed in this manner are extensible in every direction to the limit of stretchability of the paper.

Where the bottoms are sewed in, even though the linings are made of crinkled
 90 paper, the expansion is limited by the stitching. The extensibility of the crinkles adjacent the stitching is not available, whereas in the present invention the crinkles are not
 95 restricted in their capacity to stretch and on account of the freely folded excess end portions, expansion may take place around the entire periphery of the formed flat bottom
 100 and at the corners next the head of the barrel. The sewed bottom linings are weakest at the seam, and such inserted bottom cannot stretch in around its periphery. The
 105 present lining has a bottom which is expandible in all directions, and has no vulnerable seam. It is furthermore much cheaper to make.

The creases which are formed in crinkled paper, when the bag is made up in the present manner, are not particularly well defined
 110 creases, such as would appear in bags made of plain paper. They are more or less rounded. On account of the rounded corners and the extensibility of the paper, it is obvious that the linings are able to adjust
 115 themselves to any irregularity in the box or barrel in which they are placed.

What is claimed is:

1. A one piece crinkled paper bag having a formed flat bottom suitable for lining
 120 containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined peripheral crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded
 125 against the bottom to provide a formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery.

2. A one piece crinkled paper bag having
 130

a formed round flat bottom suitable for lining round bottom containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined substantially circular crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded against the bottom to provide a round formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery.

3. A one piece crinkled paper bag having a formed round flat bottom suitable for lining round bottom containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined substantially circular crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded against the bottom to provide a round formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery, said bag being collapsed into a flat object with the two halves of the formed bottom folded together inward on a line substantially coincident with the diameter of the formed bottom.

4. A one piece crinkled paper bag having a formed flat bottom suitable for lining containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined peripheral crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded down to provide a formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery.

5. A one piece crinkled paper bag having a formed flat bottom suitable for lining containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded down to provide a formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery, said bag being collapsed into a flat object with the two halves of the formed bottom folded together inward.

6. A one piece crinkled paper bag having a formed flat bottom suitable for lining containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined peripheral crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded down to provide a formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery,

said bottom being formed by spreading the lower end of the blank over a former within the blank thereby producing excess projecting end portions of the blank, creasing the material of the blank about the periphery of the former to define the formed bottom, and turning over and pressing down against the former the excess projecting end portions of the blank to complete the formed flat bottom.

7. A one piece crinkled paper bag having a formed round flat bottom suitable for lining round bottom containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined substantially circular crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded against the bottom to provide a round formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery, said bottom being formed by spreading the lower end of the blank over a circular former within the blank thereby producing excess projecting end portions of the blank, creasing the material of the blank about the periphery of the former to define the formed bottom, and turning over and pressing down against the former the excess projecting end portions of the blank to complete the formed round flat bottom.

8. A one piece crinkled paper bag having a formed flat bottom suitable for lining containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded down to provide a formed one piece flat bottom defined by said crease and which bottom is stretchable throughout its periphery, said bag being collapsed into a flat object with the two halves of the former bottom folded together inward, said bottom being formed by spreading the lower end of the blank over a former within the blank thereby producing excess projecting end portions of the blank, creasing the material of the blank about the periphery of the former to define the formed bottom, and turning over and pressing down against the former the excess projecting end portions of the blank to complete the formed flat bottom.

9. A one piece crinkled paper bag having a formed round flat bottom suitable for lining round bottom containers, and made from a one piece flat crinkled paper bag blank with unformed bottom, said bag having a predetermined substantially circular crease around the closed end of the blank and having the closed corner portions of the blank spread out and folded against the bottom to provide a round formed one piece

flat bottom defined by said crease and which bottom is stretchable throughout its periphery, said bag being collapsed into a flat object with the two halves of the formed bottom folded together inward on a line substantially coincident with the diameter of the formed bottom, said bottom being formed by spreading the lower end of the blank over a former within the blank there- by producing excess projecting end portions of the blank, creasing the material of the blank about the periphery of the former to define the formed bottom, and turning over and pressing down against the former the excess projecting end portions of the blank to complete the formed flat bottom.

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