

April 25, 1933.

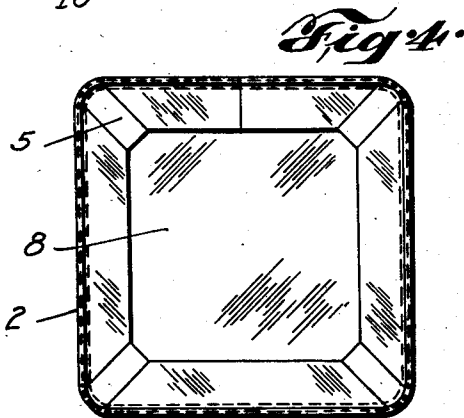
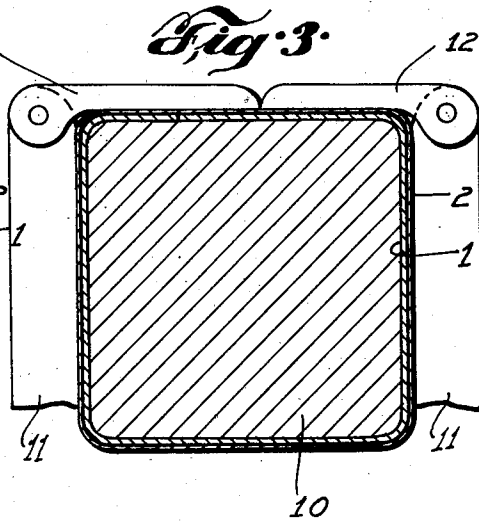
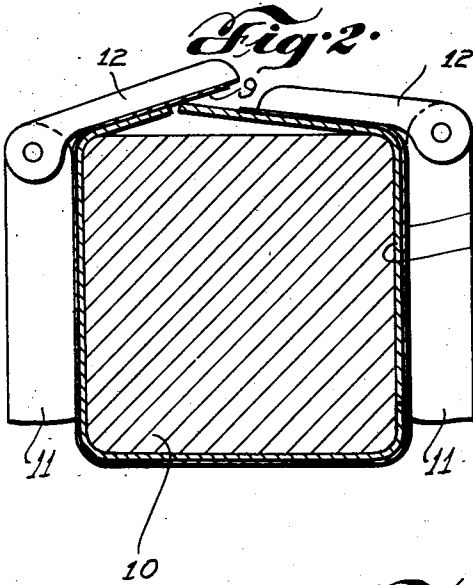
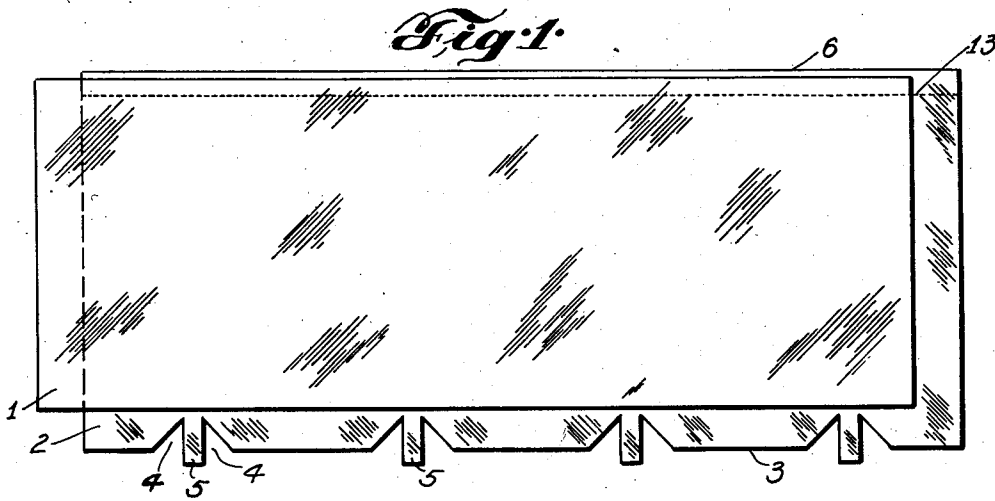
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PAPER RECEPTACLE AND METHOD OF MAKING THE SAME

Filed May 2, 1931

2 Sheets-Sheet 1



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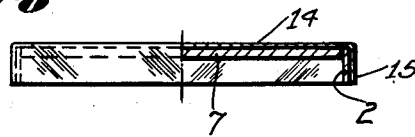
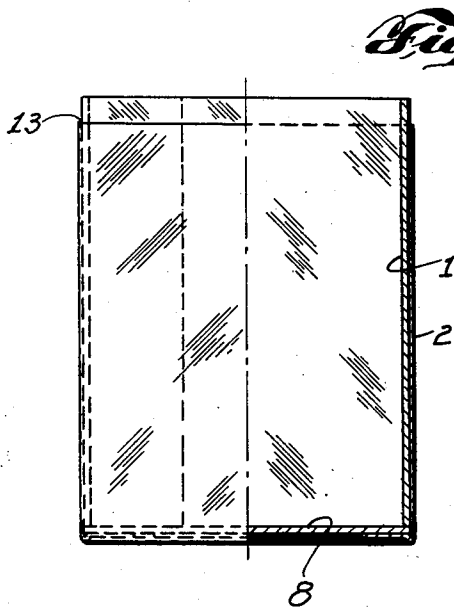
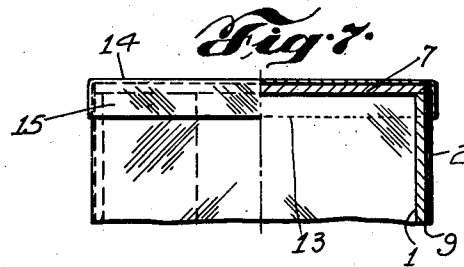
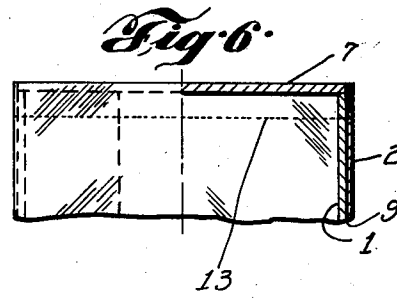
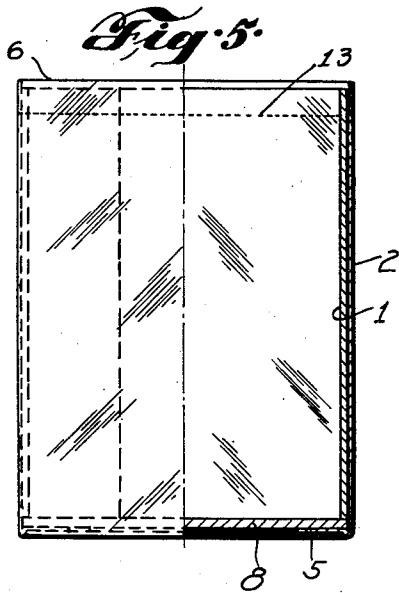
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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PAPER RECEPTACLE AND METHOD OF MAKING THE SAME

Application filed May 2, 1931. Serial No. 534,577.

My invention relates to improvements in paper receptacles and method of making the same, and has for its primary object, the production of a paper receptacle which will be light and strong, neat and attractive in appearance, substantially air-proof, and which will have butt-joined and staggered lines of securement between the adjacent edges of both the inner and outer layers of paper comprising the walls of the receptacle.

A further object of my invention is to provide a container of the kind described, which will retain its shape under practically all conditions of handling, even to a greater extent than a metal container, and yet will cost materially less than the latter.

A still further object of my invention is to make such box of an inner and an outer layer of paper, each formed of a single sheet of material of substantially the height of the box and the length of the perimeter of the same, and in which the free longitudinal edges of the outer sheet shall come together in a true butt joint.

Another object of my invention is to provide such a box, in which the upper portion of the outer sheet forming the side walls of the box may be severed from the main body of said sheet, to form a flange for the cover of the box.

A still further object of my invention is the method of forming a paper receptacle of two sheets of material, one of which is moisture and air-proofed and forms the inner ply of the receptacle, and an outer casing of a thinner sheet secured to the first sheet with adhesive, the receptacle being so formed that the outer casing is placed under tension during the formation of the receptacle, thereby holding its sides straight and preventing them from bulging or collapsing.

Another object of my invention is the method of folding the side walls of the box so as to insure a true butting of the free edges of the outer sheet, and that there shall be no space between said ends.

An air-tight polygonal can made of paper, has many advantages over cans made of other material, and especially over other shaped cans, some of these advantages being that

they may be packed in a carton with less loss of carton capacity, may be placed upon the dealer's shelves so as to always present a full side view of the can to thereby make the same more attractive and enable the label to be more easily and clearly read, and are flexible so as to retain their form even after receiving slight knocks, to thereby prevent entry of air to the contents.

Can of the kind described, with true butt joints, may be handled without danger of tearing the labels or outer casing, even when the cans rub against one another in shipment or other handling, as there will be no projections on these outer walls whereby one can may injure the other. In addition, this true abutment of the outer label enables the advertising matter to be imprinted directly on the outer sheet and obviates the necessity of an extra label or wrapper sheet, to materially cut down the cost of making such boxes, and yet make the same have a very attractive appearance, as the joint is practically invisible, especially where certain colors or color effects are used.

Many other objects and advantages of the construction herein shown and described, and the method of making the same, will be obvious to those skilled in the art to which this invention appertains, from the disclosures herein given.

To this end, my invention consists in the novel construction, arrangement, and combination of parts, and the method of making the same, herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure 1 is a plan view of the blank used for forming the side walls of the receptacle, showing the inner sheet uppermost;

Figure 2 shows the blank upon its forming mandrel and with one of the free edges beneath the other;

Figure 3 is a similar view, said edges in abutment and pressed onto the mandrel;

Figure 4 is a bottom plan view of the box, with the cover in place;

Figure 5 is a view, partially in elevation and partially in section, showing the adhesive between the inner and outer sheets, except adjacent the top;

5 Figure 6 is a similar view, with the top insert in place;

Figure 7 shows the next step, with the top sheet across the box and secured down over the sides of the latter;

10 Figure 8 is a similar view, after the upper portion of the outer sheet has been severed from its main body portion, to form a unitary cap or cover together with the insert and top sheet.

15 Referring more particularly to the drawings, wherein I have illustrated the preferred embodiment of my invention, and the manner of constructing the same, there is shown a liner sheet 1, and an outer sheet 2, 20 both of these being preferably of paper, as for example card or straw board and with the inner board considerably thicker than the outer sheet. The liner or inner sheet may be coated on its face with paraffin or other 25 substance to render it more air-proof and moisture-proof, if so desired. In case advertising matter or the like is desired on said receptacle, the same may be imprinted directly on the face of the outer sheet before 30 the same is superimposed on the inner sheet, or even before it is cut into the blanks shown, and in this manner the cost of printing and applying separate labels is obviated. The reason that labels have been heretofore re- 35 quired for such boxes, has been that they had either overlapped joints or untrue butt joints, and which had to be concealed in some manner, as with the labels.

40 The edge 3 of the outer sheet may be provided with a pair of notches 4—4 spaced apart at suitable intervals along the length of said sheet, there being tabs 5 between the notches of each pair and preferably extending slightly beyond the free edge of said 45 sheet. In this way, the blank shown in Fig. 1 may be folded to provide the polygonally-shaped box shown in Fig. 4, and the tabs 5 will be at each corner of the box, and the outer edges of the cut-outs 4 will substan- 50 tially abut the sides of the tabs and thus avoid the necessity for overlapping of the sheet thereat.

The outer sheet 2 is preferably of greater width than the inner sheet, so as to extend 55 beyond the two peripherally extending edges 3 and 6 of the latter, and is also sufficiently longer than the inner sheet to compensate for the thickness of material of the latter, and in addition is preferably cut an additional slight 60 over-length, as for example, a few thousandths of an inch.

65 The purpose of providing the slight over-length beyond that required to complete the peripheral length of the box is for the purpose of insuring a true butt-joint at the free

edges of the sheet, as will be more clearly hereinafter described.

A top insert 7 and a bottom insert 8, preferably constructed of the same, relatively stiff material as the inner sheet 1, are preferably of such a size and shape that they 70 may be inserted within the walls of the box to rest against the peripheral edges of the inner sheet, as shown. This will prevent the top or bottom of the box from being pushed 75 inwardly or crushed, and the inserts will act as a reinforcement at these points.

In constructing the box, the two sheets are superimposed on one another, with some suitable adhesive 9 therebetween, the ends of the 80 sheets overlapping or extending beyond one another at the ends, that is, one end of the inner sheet extends beyond the corresponding end of the outer sheet, while the other 85 end of the outer sheet extends beyond the other end of the inner sheet, as in Fig. 1, so as to provide staggered joints for the box, and render the latter more nearly air-proof and moisture-proof.

The two sheets thus superimposed, with 90 the adhesive therebetween, are placed in position to be wrapped around the forming mandrel 10, wherein it will be pressed onto the mandrel by the side plates or presser 95 plates 11 and 12 suitably co-operating with the mandrel, the bottom insert 8 being placed in position at this time, the corners of the mandrel being preferably rounded as shown. Of course it is to be understood that this 100 wrapping of the blank about the mandrel is done before the adhesive has set, this wrapping being tight so as to place the casing under tension.

In fact, inasmuch as the casing is relatively 105 thin, as compared with the inner sheet, it has a tendency to expand, due to the moisture in the adhesive, and then as the adhesive dries, this casing shrinks and binds itself tightly around the inner liner, and especially 110 so at the corners. In this manner, the tendency of the sides to bulge outwardly or inwardly of the container, is prevented, and these sides always remain straight, as if of metal.

115 As before mentioned, the bottom insert is positioned, preferably after the container has been folded except at the final side, and the tabs 5 are folded upwardly and inwardly, the adhesive thereat filling the space between the 120 edges of the bottom and the side walls of the casing, and upon drying, will render the package air-tight, moisture-proof, and sift-proof on the bottom.

At this point it may be mentioned that 125 although adhesive is placed between the sheets 1 and 2, yet this adhesive is not over the entire superimposed surfaces of the two, but upon the contrary, this adhesive is applied only to a predetermined distance from 130

the top edges of the two sheets, as is most clearly illustrated in Fig. 5, 6, and 7. At about this distance from the peripheral edge of the outer sheet, there is a line of perforations 13, extending lengthwise of the sheet, the upper portion of the sheet above the perforations being adapted to be detached or severed from the remainder body portion, as will be more clearly hereinafter described.

Special care must be taken to insure a true and perfect butt joint, especially at the free edges of the outer sheet, and this is done, while the blank is being formed upon the mandrel.

Referring more especially to Figs. 2 and 3, it will be noted that one free edge of the blank is brought beneath the other, while the adjoining side walls of the box are held clamped in place against the mandrel by the plates or pressers 11, this being done in any suitable manner, as by providing a movement that will advance the one plate 12 faster than the other one (toward the mandrel).

After this has been accomplished, the two plates 12—12 move in unison until the free edges of the blanks are in abutment, and especially the free edges of the outer sheet (and which is the important one), one of the presser plates, the same being the uppermost one, overlying and extending beyond the free edges of both the inner and the outer sheets, as shown.

With the two free edges of the outer sheet in true abutment, and with the adjoining side walls of the box clamped against the mold or mandrel, the two plates 12—12 are advanced against the mandrel in unison, to press the sheets tightly against the mandrel. Any excess length of material that may be in the outer sheet is squeezed onto the mandrel and the two sheets slide on one another, the adhesive not having yet set, and this excess material of the outer sheet is pressed toward the corners of the box and away from either side of the butt joint. This outer sheet is cut only a few thousandths oversize, and there will be but little excess length to be taken care of, but any amount that is present will be moved toward the rounded corners, where it will not be noticed, the only outward effect being that the corners will be slightly more rounded.

The formed box, with the bottom insert therein, is retained in the mandrel, and travels through a heater or dryer (not shown) to accelerate the setting of the adhesive, whereupon the boxes may be discharged.

In this manner, the outer butt joint must be absolutely true and it is not possible for the two free edges to fail to come together to make this true butt. Hence the joint will be scarcely observable, and the outer sheet may have printing directly thereon, without danger of the joint interfering with this print-

ing, thus reducing the cost of printing the boxes.

The top cover for the box is formed in the following manner:

An insert 7 is placed across the top opening of the box, the edges of the same being supported on the top edge of the inner sheet 1, the outer sheet projecting slightly above the top edge of the inner sheet a sufficient distance to permit of the insertion of this insert 7, and have the top of the same flush with the top edge of the outer sheet.

A cover sheet 14, preferably of thinner material than the insert 7, and flexible and pliant, is then superimposed on the insert 7, with adhesive therebetween, the top sheet extending beyond the edges of the insert a sufficient distance to permit of the extending portion being bent downwardly of the container, and secured to the upper portion of the latter, as along the flange 15, the adhesive on the sheet 14 entering the space between the insert 7 and the opposed surface of the outer sheet to better secure these parts together, and also form an air-proof and moisture-proof seal therealong.

When it is desired to open the package, a knife or other suitable tool is used to sever the upper portion of the outer sheet from the main body portion thereof, as by cutting through the outer sheet along the peripheral line of perforations, whereupon, said severed upper portion forms a peripheral flange for the cover of the box, and is unitary together with the top sheet 14 and insert 7.

This cover is thus flanged, and is removable from the box, and fits perfectly, inasmuch as a portion thereof was previously part of the side walls of the container. As the flange expands and contracts exactly as the container, there is never any question of whether or not a certain cover will fit a certain box, because each cover thus formed must fit the box from which it was taken.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, arrangement, construction, and combination of parts herein shown and described, or uses mentioned, or the method of constructing the devices, except as limited by the state of the art to which this invention appertains, and the claims hereto appended.

What I claim as new and desire to secure by Letters Patent is:

1. A paper box having inner and outer side walls secured together below the top edges and free of securement from said top edges to a predetermined spaced distance therebelow; and a top over the open top of said box and secured to the outer surface of said upper portion of the outer sheet whereby said upper

portion of the outer sheet may be detached from the main body portion of the latter to form a flanged cover unitary together with said top.

2. A paper box comprising inner and outer sheets bent to form the side walls of the box and secured together below the top edges, said sheets being free of securement to one another thereabove; and a top sheet across the top of said box and secured to said upper portion of the outer sheet, whereby the latter portion may be severed from the main body portion of said sheet to provide a flange for said top sheet.

3. A box comprising inner and outer paper sheets forming the sides of the box and secured together except adjacent the top edges. the outer sheet being perforated along a line spaced from its top edge; and a top sheet secured over the box and to said upper perforated portion, whereby the latter may be severed from the main body portion of said sheet along its line of perforations to form a flange for and unitary with said top sheet.

4. A box of the kind described, comprising inner and outer walls secured together except adjacent the top, the top edge of the inner wall terminating below the top edge of the outer wall; a top insert on the top edge of the inner wall; and a top sheet secured to said insert and being secured to the exterior of the outer wall, whereby the topmost portion of the outer wall may be severed from the remaining body portion to form a removable flanged top for the box together with the top sheet and insert.

5. A box of the kind described, comprising inner and outer paper sheets secured together below their top edges, the top edge of the inner sheet terminating below the top edge of the outer sheet; a relatively stiff insert positioned across the top of the box and supported on the top edge of the inner sheet; and a flexible top sheet secured to said insert and overlying the exterior of the outer sheet below the top edge of the latter and secured thereto, whereby the unsecured portion of the outer sheet may be severed from its main body portion to form a removable flanged top cover together with said top sheet and insert.

6. The method of making a polygonal can of two superimposed sheets of paper secured together and the outer sheet being slightly longer than the periphery of the finished can, comprising bringing the edges of the outer sheet together in a butt joint and pressing any excess length of said sheet to either side of the butt joint.

7. The method of making a polygonal box of two sheets of paper with adhesive therebetween comprising placing the same on a polygonal mandrel securely clamping the sheets against all but one polygonal face of said mandrel, the opposed free edges of the sheets not being clamped to the face of the mandrel,

then bringing the edges of the outer sheet together in abutting relation, and then pressing said side of the box against said mandrel, whereby any excess length of the sheet will cause the same to slide on the inner sheet and distribute such excess to either side of the butt joint.

8. The method of making a polygonal box of two sheets of material, consisting of placing one sheet on the other with one end of each sheet extending beyond the adjacent end of the other and with adhesive therebetween, said outer sheet being slightly longer than the periphery of the finished box, placing on a mold, holding the edges of the outer sheet in abutment, and pressing onto said mold to spread said excess length toward the corners of the box.

9. The method of making a polygonal box of two sheets of paper, consisting of superimposing said sheets on one another with adhesive therebetween and with their ends offset, the length of the outer sheet being slightly greater than the perimeter of the finished box, placing said superimposed sheets about a mold with the free edges of the outer sheet intermediate a pair of adjacent corners of the box so as to form one face of said polygon, clamping the box onto said mold except at said one face and a slight distance beyond said pair of corners thereof, and then placing the edges of the outer sheet in abutment and pressing the sheet onto the mold, thereby spreading the excess length of the sheet to either side of the butt joint and toward the said pair of corners before the adhesive has set.

10. The method of making butt-jointed boxes, comprising placing an inner sheet of paper board superimposed on a thinner outer sheet of paper with adhesive therebetween, the ends of the sheets being offset, placing on a forming mold and holding the two sheets clamped together thereon except at the side wall having the lines of juncture therebetween, bringing one edge of the box beneath the other, then bringing the edges of the outer sheet into abutment and pressing onto said mold to thereby force the excess length of the outer sheet to either side of the line of juncture.

In testimony whereof I have affixed my signature.

EDGAR B. BICKER.