

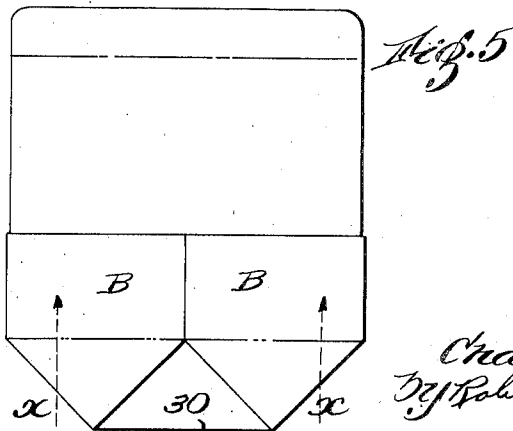
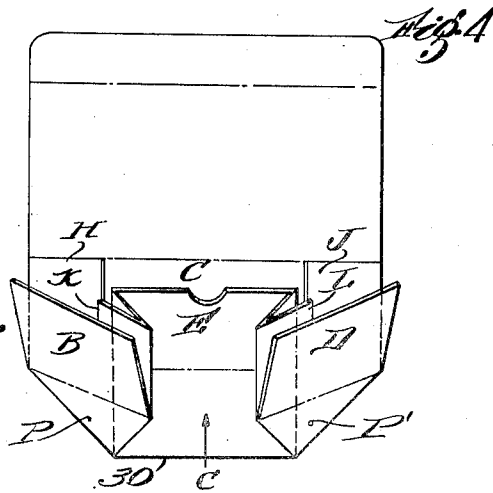
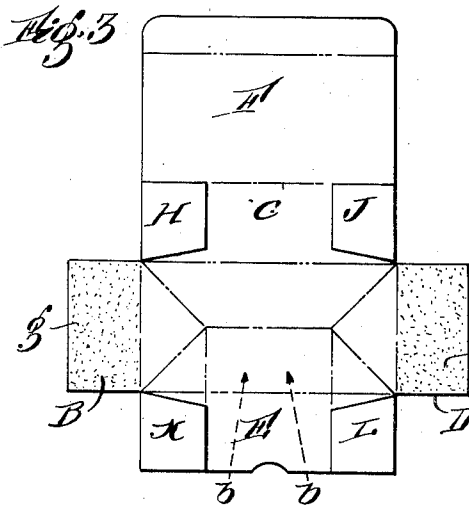
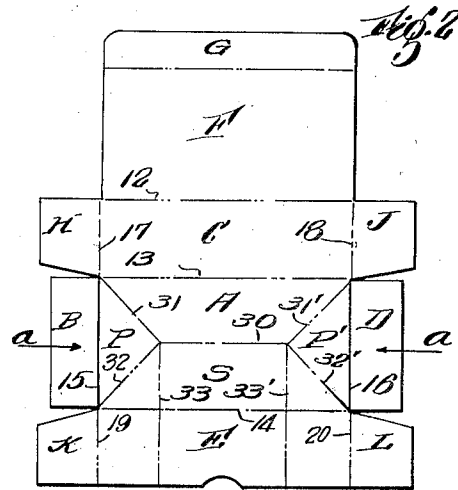
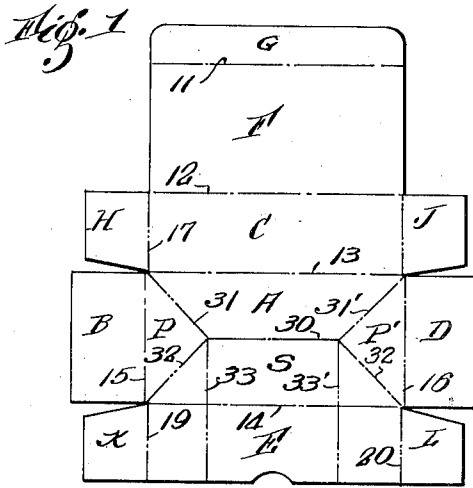
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ART OF MAKING RECEPTACLES

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ART OF MAKING RECEPTACLES

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Original application January 17, 1930, Serial No. 421,474. Divided and this application January 8, 1932. Serial No. 585,550

5 Claims. (Cl. 93—49)

This application is a division of my copending application Serial No. 421,474, filed January 17, 1930, and relates to an art or method of making receptacles, such for example as boxes, trays or
5 cartons of any suitable material such as paper or cardboard.

One object of the invention is to provide for the formation of collapsed receptacles from flat blanks by an improved method characterized by
10 simplicity and ease of accomplishment, and especially adapted for performance by automatic machinery. Other objects of invention and features of advantage and novelty will be apparent from this specification and its accompanying
15 drawing wherein my invention is explained by way of example.

In the drawing:

Fig. 1 shows in elevation a blank capable of being folded and fastened to form a receptacle
20 and closure;

Figs. 2, 3, 4 show the blank of Fig. 1 at various stages of one method of forming a folding receptacle from a blank of this character;

Fig. 5 shows in elevation a completed collapsed
25 receptacle and serves as a diagram to show a preferred mode of applying pressure to glue laps of the receptacle during manufacture.

The blank shown in Fig. 1 may be comprised of a flat integral sheet of cardboard or other suitable material divided by lines of increased flexibility, for example scored, creased or otherwise
30 more flexible fold lines 11, 12, 13, 14, 15 and 16 which define edges of the finished receptacle, and provide a principal folding section A, suitable for the bottom of the receptacle, side wall
35 sections B, C, D and E joined to and preferably integral with, the principal folding section A, a cover section F and a suitable tuck-in flap G for the cover section.

At each end of the principal folding section or bottom A, there are provided pairs of diagonally disposed fold lines 31, 32, and 31', 32', extending from adjacent corners to common
40 junctions with a longitudinal fold line 30. Beginning at these junctions of line 30 with the pairs of diagonal lines 31, 32, and 31', 32' there are provided other fold lines 33, 33', each extending perpendicular to line 30 to an edge of the principal folding section A and across a neighboring wall section. Preferably, as shown, the
50 two lines 33 and 33' extend across the same side wall section E.

Suitable lap or connecting sections for holding together the several side wall sections may be
55 those indicated at H, J, K and L, preferably constituting extensions of the opposite longer side wall sections C and E, and demarked by fold lines 17, 18, 19 and 20 respectively.

The scoring, creasing or other operation of
60 forming the fold lines leaves unscored or un-

creased opposite triangular areas P and P' at the respective ends of the principal folding section A; this is of utility in practicing the steps of folding and fastening now to be described.

As a preliminary to the application of glue or
65 other adhesive to appropriate parts of the blank, side sections B and D are preferably somewhat bent down by acting on them as indicated by the arrows *a* (Fig. 2) to get these sections out of the way of instruments adapted to act upwardly
70 on the laps or connecting sections H, J, K and L. These laps H, J, K and L may then easily be folded upward and inward upon their adjacent side wall sections C and E and the side wall sections B and D be returned to positions approxi-
75 mating their original positions. Glue or any suitable adhesive may then easily be applied to the side wall sections B and D as indicated at G (Fig. 3). All of these operations may be per-
80 formed by simple and well known devices appropriately disposed along a line of travel of a procession of the blanks.

The blank is then ready to be folded into the collapsed receptacle of Fig. 5 by a simple folding operation accomplished by applying force to
85 the principal folding section A in the regions indicated by the arrows *b* in Fig. 3 and arrow *c* in Fig. 4. By this operation, the principal folding section A of the blank is folded upon itself on line 30 which then defines an edge
90 projecting outwardly away from the remainder of the blank, opposite side sections E and C are superposed in parallel relation, and intermediate side sections B and D are superposed upon side sections E and C. Glue lap H is thus caused to
95 lie between wall sections B and C, glue lap K between wall sections B and E, glue lap J between wall sections D and C, and glue lap L between wall sections D and E. The ends of the adjacent glue laps of a pair may lie adjacent to each other,
100 or abut.

Adhesion of the glue laps to their now superposed side wall sections obviously is effective to conjoin all of the side walls of the collapsed receptacle. To insure a strong joint between the
105 glue laps and the side wall sections to be affixed thereto, pressure may be applied, preferably as rolling pressure acting on the assembled collapsed box in the direction of the arrows *x* in Fig. 5.

All of the operations involved in manufactur-
110 ing a flat collapsed receptacle from a blank may be performed by the operations indicated, which are of such simplicity as to be suitable for making by automatic machinery; this order of operations is such that the receptacle (starting as a flat
115 blank) may be moved very rapidly past, and in contacting relation to plow, folding and pressure members which react upon the various elements of the box to move them to their folded positions. The application of adhesive at *g* is fa-
120

cilitated by the isolation of the sections B and D laterally of the line of relative motion between the blank and the instruments acting upon it; the entire operation is thus suitable to be performed during continuous rapid relative movement in one direction between the blank and the making instruments.

By striking the projecting edge 30 of the collapsed receptacle, it can be opened into a receptacle having a bottom, four complete side walls and a cover, ready for use. If desired, the open receptacle can be recollapsible into the form of Fig. 5. It will be observed that the top or cover, if provided, and the four side walls are integral sections, of the full area of the sides, of the same face of the cardboard, which enables these faces to be coated, printed or decorated, a qualification so important in a carton for merchandise as to be necessary in a package of value to the merchant. Only one of the side walls (E, Fig. 1) is necessarily scored, and that vertically, which does not interfere with decoration. The glue-laps necessary to the continuity of the four side walls are interior, and the overlapped edges are at the corners of the solid defined by the tray, carton or box. The mode of assembly described insures effective conjoining of the necessary glued joints in one rapid operation without subjecting the box or carton to any stresses which might fatigue the cardboard at critical fold-lines in respect to the durability of the box or tray after assembly; this assembly is predetermined by the lines of fold of the blank, and independent of any operations requiring more than the application of glue or other adhesive, and directed pressure.

Obviously variations may be made in the proportioning of the parts of the blank, in the disposition of the lap or connecting sections, for example by extending them from sections other than sections C and E, and in the areas or places for application of adhesive, so long as one of each pair of parts intended to be fastened receives adhesive.

I claim:

1. Art of making a receptacle characterized by forming a blank having a principal folding section adapted to constitute one face of a receptacle, four side wall sections each adapted to constitute another face of the receptacle and suitable lap or connecting sections adapted to hold these elements of the blank together in the form of a receptacle, forming in said principal folding section a longitudinal line of increased flexibility and lines of increased flexibility each extending from said longitudinal line at right angles thereto and across one of said side wall sections, applying adhesive to parts of the receptacle which overlap in the finished receptacle, folding the blank on the said longitudinal line in a direction such that the edge thus formed projects outwardly away from the remainder of the blank and the opposite side wall sections are swung inwardly toward each other, and simultaneously with such folding on the longitudinal line superposing three of the side wall sections on the fourth side wall section with the lap sections interposed between respective side wall sections, and subjecting the folded blank to pressure to fasten together the side wall sections by adhesion of respective lap sections thereto.

2. Art of making a receptacle characterized by forming a blank having a principal folding

section adapted to constitute one face of a receptacle, four side wall sections each adapted to constitute another face of the receptacle and four lap sections constituting extensions of two opposite side wall sections, folding said lap sections upon the side wall sections from which they extend, applying adhesive to the other two side wall sections, folding the blank to superpose the two side walls which carry lap sections and to bring each of the two adhesive-carrying side wall sections into superposed relation to the adjacent two lap sections, and applying pressure to affix the adhesive-carrying side wall sections and the lap sections.

3. Art of making a receptacle characterized by forming a blank having a principal folding section adapted to constitute one face of a receptacle, four side wall sections each adapted to constitute another face of the receptacle and four lap sections in the form of integral extensions demarked by fold lines, folding said lap sections upon said fold lines onto the remainder of the blank, applying adhesive to parts of the blank adapted to overlap, folding the blank to bring all of said lap sections upon the area of one side wall section and the opposite side wall sections into superposed relation to said lap sections, and effecting adhesion of each lap section to a side wall section by pressure, to form a collapsed receptacle having three side walls superposed on a fourth side wall and another wall joined to each of said four side walls and projected outwardly therefrom.

4. Art of making a receptacle characterized by forming a blank to provide a principal folding section constituting the bottom of the receptacle, opposite side wall sections and a front and a rear wall section, the front and rear wall sections having laterally extending integral laps engageable with the adjacent side wall sections in the erected structure, forming in said principal folding section a longitudinally extending line of increased flexibility and lines of increased flexibility each extending from said longitudinal line at right angles thereto and across the front wall section, applying adhesive to the face of each side wall section, folding the blank on said lines of increased flexibility so that the front wall section is superposed on the rear wall section and the side wall sections are swung inwardly into juxtaposition to each other and in superposed relation to said laps, and subjecting the folded blank to pressure, thereby to effect adhesion of the side wall sections to the adjacent laps.

5. Art of making a collapsed receptacle characterized by forming a blank having a principal folding section adapted to constitute one face of the receptacle, four sections adjacent to said principal folding section and each adapted to constitute another face of the receptacle, and four lap sections in the form of integral extensions demarked by fold lines, folding said lap sections along said fold lines onto the remainder of the blank, applying adhesive to parts of the blank adapted to overlie said lap sections, overlying said parts by folding said principal folding section outwardly along a line of increased flexibility and at least one of said adjacent sections inwardly and at right angles to said line, and applying pressure to affix said overlying parts to said lap sections.

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