

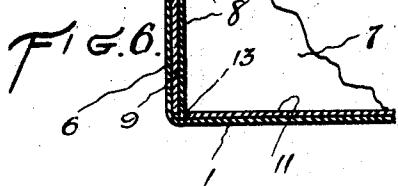
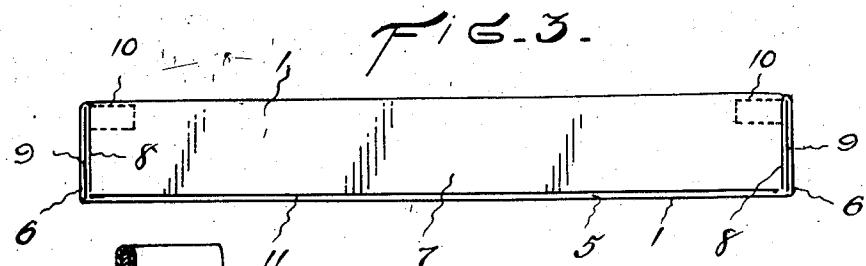
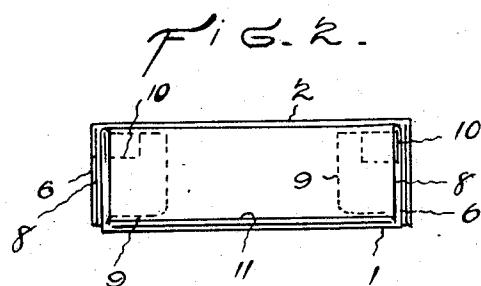
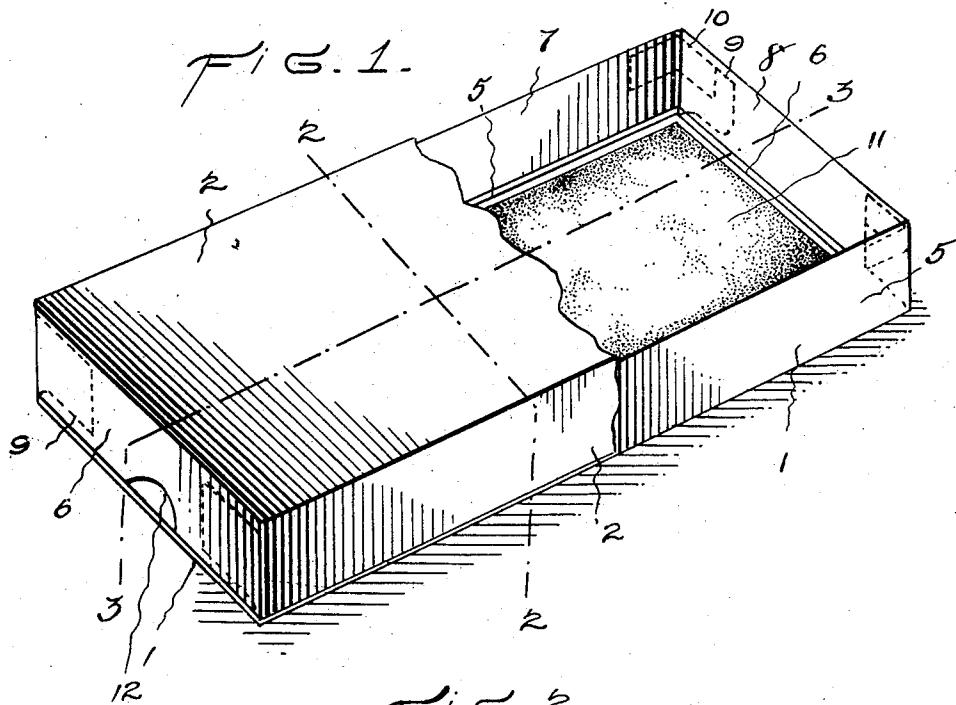
March 22, 1932.

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1,850,164

MANUFACTURE OF PAPER BOXES

Filed Jan. 10, 1930 2 Sheets-Sheet 1



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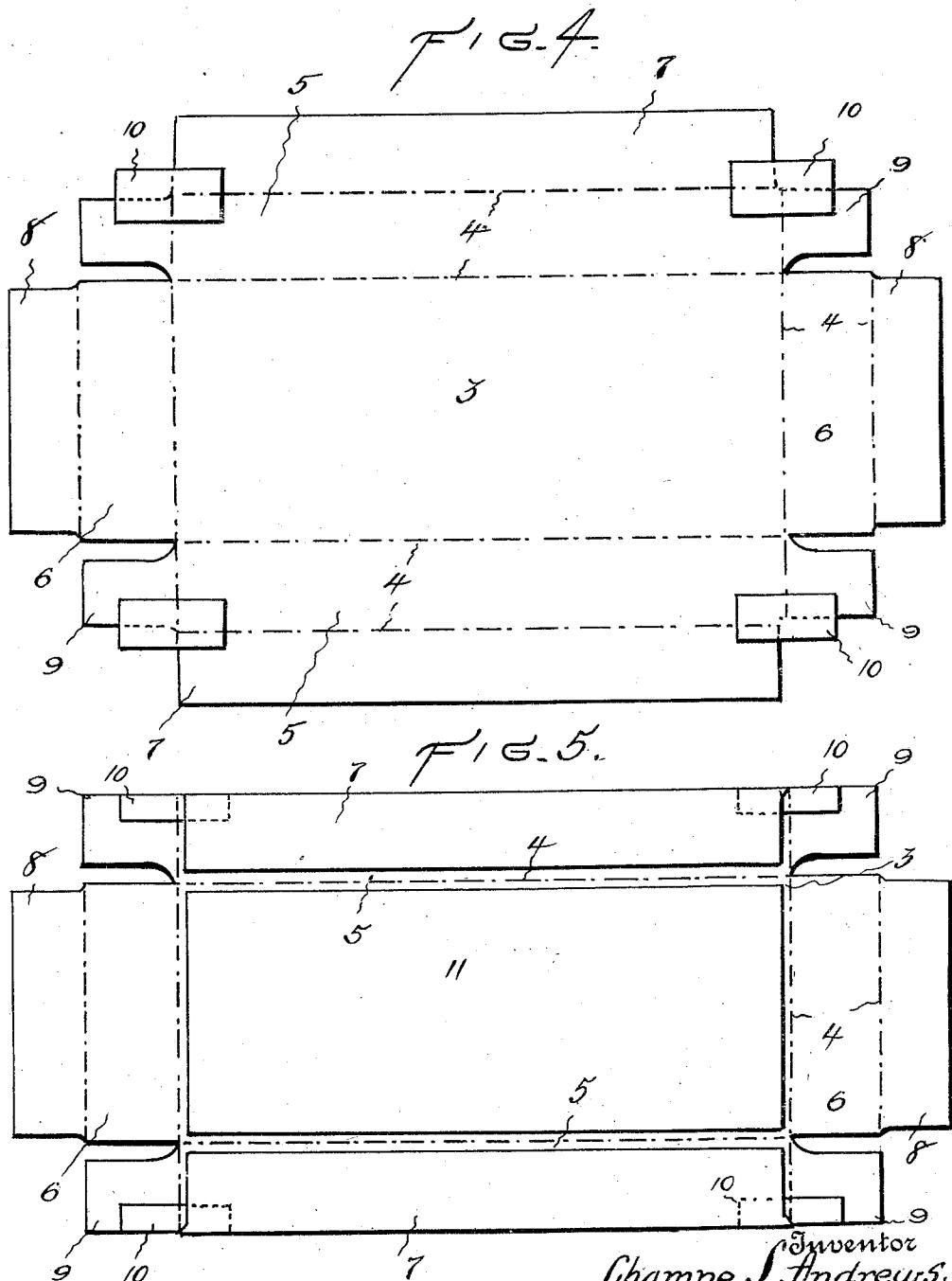
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UNITED STATES PATENT OFFICE

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MANUFACTURE OF PAPER BOXES

Application filed January 10, 1930. Serial No. 419,770.

The present invention relates to the manufacture of boxes and particularly boxes made of paper board. The object of the invention is to produce a machine assembled box which is so designed and constructed of a sheet blank with added reinforcements that a box of the maximum strength and rigidity is obtained from the material employed.

The invention is applicable to a box comprising a body which is folded to form a receptacle having a bottom and side and end walls. The invention may also be applied to a separate cover member which is arranged to telescope over said receptacle or body.

15 The box produced by means of the improved method of manufacture hereinafter described is composed of a number of prepared blanks or pieces which are assembled by a machine, preferably automatic in operation, whereby said blanks or pieces are folded, located and adhesively secured together to form a set up box or box members ready for packing. The box members as produced according to this invention, have 20 strongly reinforced corners and bottoms, and also reinforced tops when the invention is applied to the cover member of the box.

25 The improved method of manufacture and the box produced thereby will be more fully described hereinafter with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of a telescoping box having two sections, namely the body or receptacle and the cover therefor, the latter being broken away to show the inside of the body;

Figure 2 is a cross section on the line 2—2 of Figure 1;

Figure 3 is a longitudinal section of the line 3—3 of Figure 1, the cover member being omitted;

Figure 4 is a plan view of the prepared and partly reinforced blank from which the box or cover is composed;

Figure 5 is a plan view of the blank which is partly folded and to which blank a bottom or top reinforcement member has been applied; and

Figure 6 is a fragmentary sectional view

of a part of the box member as slightly modified.

Referring to said drawings the body member 1 and the cover member 2 may be identical with the exception that the cover member is slightly larger than the body member so as to permit of a telescoping fit. Both of said members are formed of a substantially similar shaped blank 3 having sections defined by score lines 4. Sections 5 form the outer side walls and sections 6 form the end walls of the box member. Flaps or folding over portions 7—8, connected respectively to the side walls 5 and end walls 6, are arranged to fold inwardly from the top edges of the members 5—6. Tongues 9 extend from both ends of the sections 5 and these tongues are arranged to fold inwardly so as to be overlapped by said folding in flaps 7—8. It will be understood that the board usually used for boxes is apt to tear at the corners especially on the creased folding lines. It is proposed, when required, to reinforce the corners of the box by adhesively securing thereon strips 10 composed of tough paper and when the corners are folded these strips 10 are doubled over and thereby provide an efficient reinforcement.

The bottom of the body and the top of the cover member are reinforced by the addition thereto of a sheet which substantially covers said bottom and top, leaving only sufficient clearance for the bending of the side and end wall forming sections into a vertical position, substantially at right angles to the bottom or top of the box. The cover member may be cut out at 12 so as to provide a finger hold to facilitate removal of the cover.

In the operation of the improved method of manufacture above set forth, the prepared blanks are printed, when required and then passed through a blanking out operation in which the blanks are cut out and scored as required. In a subsequent operation the reinforcement paper strips 10 are applied at points adjacent to the corners of the blank, as shown in Figure 4. These strips are located and adhesively secured by means of an automatically operating machine, specially designed for the purpose. In another op-

eration the blanks are passed through another machine operation, which folds over the flaps 7-8 and adhesively secures them to the side wall sections 5-6 and in this operation the paper strips 10, if employed, are doubled over on themselves. Preferably in a separate machine operation the reinforcement sheet 11 is located in proper relative position with respect to the bottom or top 5 of the blank and adhesively secured thereto.

After the above described operations have been effected, the blank is then in the condition to be folded and adhesively secured to form the set up box member. In this final 15 folding operation, the double side walls are brought to the vertical position so as to stand at right angles to the bottom or top of the member as the case may be. The tongues 9 are folded inwardly against the end walls 6 20 which are also brought into a vertical or right angle position relatively to the bottom or top of the box. When in this position, the flaps 8 are folded over the end wall sections so that said tongues lie between said end wall sections 25 and the over-lapping flaps which latter are adhesively secured to retain the box member in the folded set up position.

Referring to Figure 6, herein the construction is modified slightly in such a manner that 30 the folded in end wall flap 8 is lengthened so as to frictionally bear on the surface of the box bottom and the edge of said flap bears against the shoulder 13 formed by the edge of the reinforcement sheet 11. By this means 35 the folded flaps 8 are retained in place without gluing or any additional securing means.

The box or container hereinbefore described has all the essential requirements of an 40 efficient, economical packing box. At the same time, it is peculiarly strong and rigid because the sides and ends, as well as the bottom and top, are formed of a double thickness of board. These results are obtained 45 without sacrificing the appearance of the box since the spacing of certain members in relation to other members is such that the interior of the box presents an unusually neat appearance, resembling a single walled box although it is in reality double walled. This 50 appearance may be brought about by causing the inner flaps on the side and end sections to extend approximately the right distance to contact with the reinforcing sheet on the bottom and top of the body section of the box although special accuracy and precision 55 in manufacture are not required by the improved methods hereinbefore described.

The box or container hereinbefore described is conformingly designed to permit 60 employment of the method of manufacture hereinbefore described which includes a number of operations which are preferably effected by machine operation. Accordingly, a box 65 is produced that has all the essential requirements of an efficient and economical packing

box. It is to be understood that the claims hereunto annexed are intended to cover the above described method of manufacture which includes the several operations described herein and said claims also are intended to cover the product which is substantially the box or box member constructed and arranged as shown in the accompanying drawings.

I claim:

1. In the manufacture of a box member of the class described, the formation of the composing blank by cutting and creasing so as to define sections comprising a body, side sections and end sections, said end and side sections having flaps connected thereto, said side sections having tongues extending laterally therefrom; mounting a reinforcing sheet on the inner surface of said body; folding over the flaps connected to the side walls; bending said side walls into a perpendicular position relatively to said body portion; folding said tongues inwardly and folding the flaps on said end walls so as to over-lie said tongues.

2. In the manufacture of a box member of the class described, the formation of the composing blank by cutting and creasing so as to define sections comprising a body, side sections and end sections, said end and side sections having flaps connected thereto, said side sections having tongues extending laterally therefrom; precisely locating and adhesively securing a reinforcing sheet on the inner surface of said body; folding over and adhesively securing the flaps connected to the side walls to these walls; bending said side walls into a perpendicular position relatively to said body portion; folding said tongues inwardly and bending and adhesively securing the flaps on said end walls so as to over-lie said tongues.

3. In the manufacture of a box container and cover member of the class described, the formation of the composing blank by cutting and creasing so as to define a section forming the top or bottom of the box member, side sections and end sections forming the side and end walls of the box member, said end and side sections having flaps connected thereto, said side sections having tongues extending laterally therefrom; precisely locating and adhesively securing a reinforcing sheet on the inner surface of the top or bottom forming section; locating and adhesively securing reinforcing strips on the corners of said blank; folding over and adhesively securing connected flaps to said side walls; bending said side walls into a perpendicular position relatively to the top or bottom of said member; folding said tongues inwardly and bending and adhesively securing the flaps on said end walls so as to overlie said tongues and said reinforcing corner strips.

4. The product of the hereinbefore described method consisting of a box comprising

ing a container member and a telescoping cover member each member having double glued side walls, double glued end walls, the inner wall of said double end walls over-lying 5 inwardly folding tongues extending from said side walls and a separate sheet adhesively secured to the top surface of the bottom of said container member and on the under surface of said cover member so as to provide 10 a reinforcement.

5. A product of the hereinbefore described method consisting of a box member having side walls, double end walls, the inner end walls over-lying tongues connected to 15 said side walls, and a separate reinforcing sheet mounted on the inner surface of the bottom or top of said member, providing a re-enforcement and retentive means for said inner end walls.

20 6. A box member produced by the method hereinbefore described, said member comprising a top or bottom glued double side walls, double end walls, reinforcement corner strips, tongues extending from said side 25 walls, the inner wall of said double end wall over-lying said tongues and said corner strips, and a reinforcing sheet mounted on the inner surface of said top or bottom operating as a re-enforcement and as retentive 30 means for said inner end walls.

7. A box partly or wholly produced by the method hereinbefore described, said box comprising a body or containing member; said body member having bottom, side and end 35 walls; said side walls having inwardly folded flaps connected to said side walls; said side walls having end pieces extending therefrom adapted to be folded inwardly against said end walls; said end walls having flaps folding over said pieces and a separate reinforcing sheet located on the top or inner surface of said bottom so as to provide a reinforcement and means for retaining said end wall flaps in the folded position.

40 8. The method of manufacturing laminated boxes which consists in cutting and scoring the blank to define a body section, side sections and end sections, the side and end sections having flaps integral therewith 45 and the side sections having tongues extending laterally therefrom, then securing a reinforcing sheet on the body portion spaced from the side and end walls a distance not less than the thickness of the blank, then 50 folding over and adhesively securing the flaps to the side walls to form a double thickness thereof substantially their entire depth, then bending the side and end walls into a perpendicular position relative to the body 55 portion so that the reinforcement on the side walls contacts with the reinforcing sheet on the body section and forms a tight joint therewith, the tongues on said side walls being bent inwardly to contact with the end 60 walls, then folding over the flaps on the end 65 walls, then folding over the flaps on the end

walls to overlie said tongues and to contact with the reinforcing sheet on the body section thereby forming a closed joint between the body reinforcing sheet and the flaps to give the appearance on the inside of the box 70 of a single walled box.

In testimony whereof I have hereunto set my hand.

CHAMPE S. ANDREWS.

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