

S. BACHMANN.

BOX.

APPLICATION FILED JUNE 1, 1909.

935,349.

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

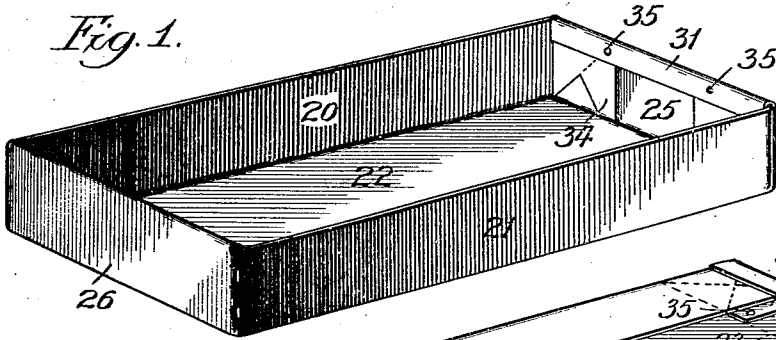


Fig. 2.

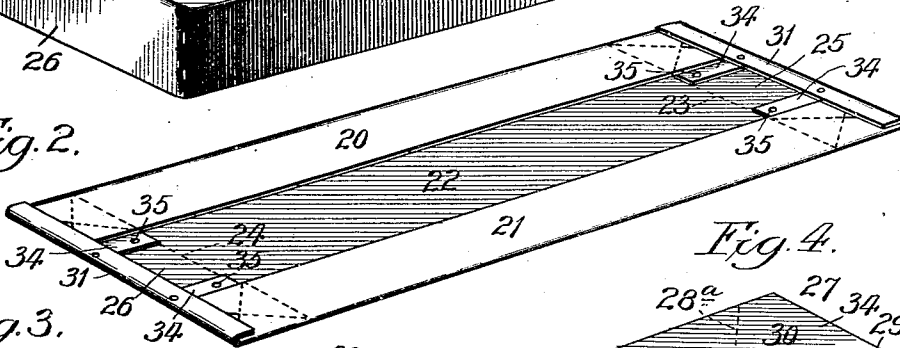
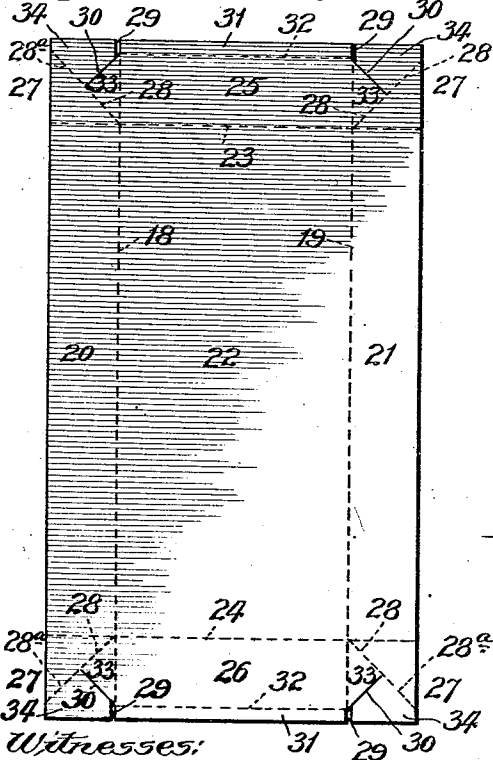


Fig. 3.



Witnesses:
John Enders
Chas. H. Buell

Fig. 4.

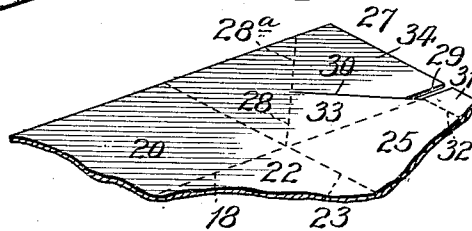


Fig. 5.

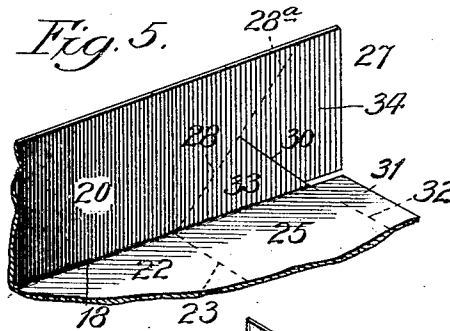
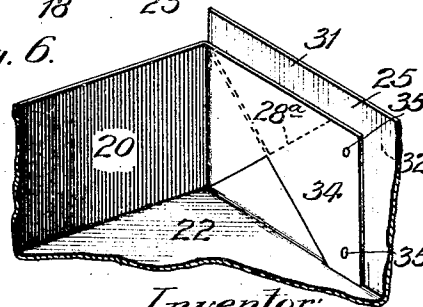


Fig. 6.



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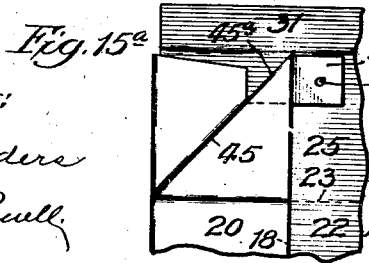
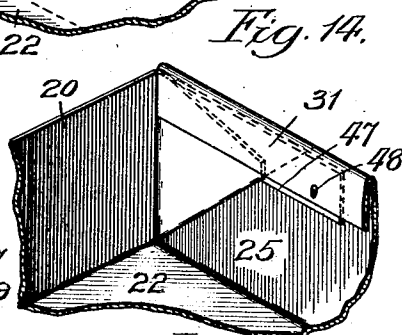
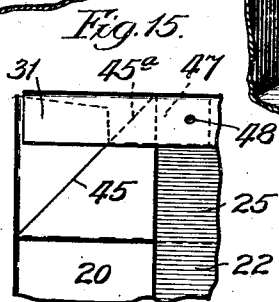
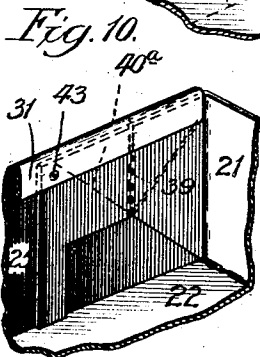
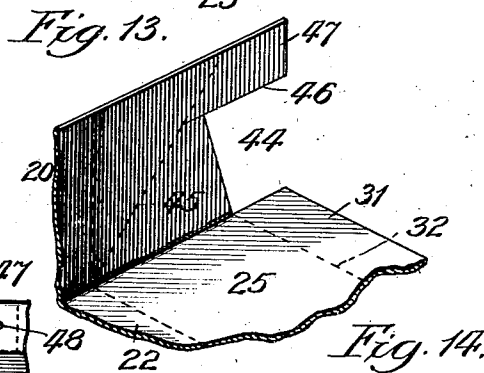
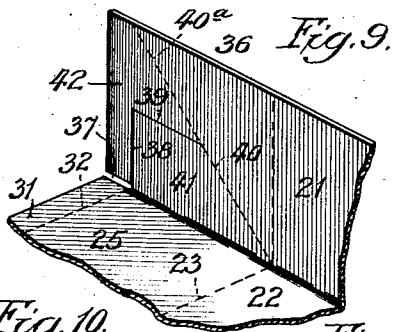
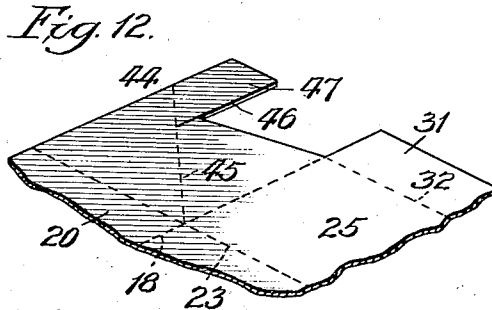
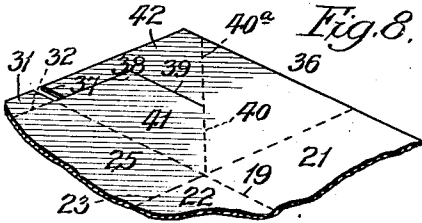
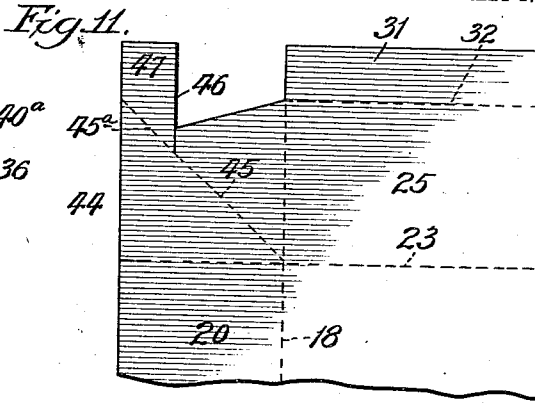
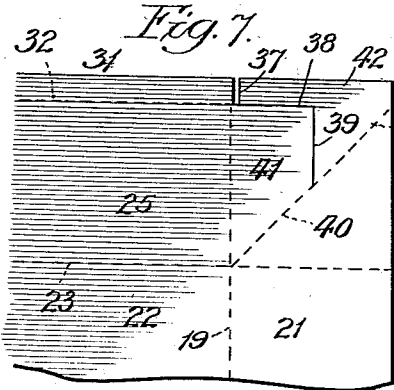
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2 SHEETS—SHEET 2.



Witnesses:

John Enders
Chas. A. Bull.

Inventor:

Siegmund Bachmann,
By Sympson, Lee, Chittor & Miles,
Attys.

UNITED STATES PATENT OFFICE.

SIEGMUND BACHMANN, OF CHICAGO, ILLINOIS.

BOX.

935,349.

Specification of Letters Patent.

Patented Sept. 28, 1909.

Application filed June 1, 1909. Serial No. 499,550.

To all whom it may concern:

Be it known that I, SIEGMUND BACHMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Boxes, of which the following is a specification.

My invention relates to an improvement in the class of boxes, more commonly made of paper-board, involving in their manufacture the making of a blank of a desired form and bending such blank along folding lines to produce the box, this invention relating, more particularly, to boxes in which the foldable corner-extensions thereof are hinged to adjacent walls of the box.

My primary objects are to so construct boxes of the type above referred to as to render them very strong and durable and proof against accidental displacement of the box-walls and in the accomplishment of these ends to use the minimum amount of stock.

Referring to the accompanying drawings, in which I have illustrated my invention in a few of the number of forms in which it may be embodied—Figure 1 is a perspective view of a foldable paper-board box illustrating a construction thereof embodying one form of my invention. Fig. 2 is a similar view of the same showing the box in collapsed condition. Fig. 3 is a plan view of the blank from which the box illustrated in the preceding figures is formed. Fig. 4 is an enlarged broken perspective view of one of the four similar corner-portions of the blank represented in Fig. 3. Fig. 5 is a similar view showing a wall-portion of the blank and its adjacent corner-extension folded to erect position at which they extend at a right-angle to the base of the blank. Fig. 6 is a view of the same showing adjacent walls erected with the corner-extension between them folded into position against one of the walls, the views presented by Figs. 5 and 6 illustrating the successive operations for folding the blank to produce one of the four similar corner-portions of the box and righting its walls. Fig. 7 is a broken plan view representing one of the four similarly constructed corners of the blank for another form of embodiment of my invention. Fig. 8 is an enlarged broken perspective view of

one of the four similar corner-portions of the blank illustrated in Fig. 7. Fig. 9 is a view of the blank of Fig. 7 showing one of the walls and its adjacent corner-extensions folded to erect position at a right-angle to the base of the blank. Fig. 10 is a similar view showing adjacent walls erected with the corner-extensions at their ends folded into position against one of the walls. Fig. 11 is a plan view of one of four similar corner-portions of a blank for forming another form of box embodying my invention. Fig. 12 is an enlarged broken perspective view of one of the four similar corner-portions of the blank illustrated in Fig. 11. Fig. 13 is a similar view of the blank illustrated in Fig. 12 with one of its walls and its adjacent corner-extension folded to erect position at a right-angle to the base of the blank. Fig. 14 is a similar view showing adjacent walls righted and the adjacent corner-extension folded against a wall of the box. Fig. 15 is a broken plan view of one of the four similar corner-portions of a collapsed box formed from the blank of Figs. 11 to 14 inclusive, showing the end-flap secured in place; and Fig. 15^a, a similar view of the box showing the end-flap in unfolded condition.

Each of the three constructions of the box selected for illustrating a different embodiment of my invention is of the collapsible type involving, generally stated, a base having four walls hingedly connected with the base, with extensions carried on the ends of opposed walls adapted to be folded flatwise against adjacent walls of the box and held in position against accidental displacement by flaps carried by the walls against which the extensions are folded.

Referring particularly to Figs. 1 to 6 inclusive, the box in its erect or non-collapsed condition is represented by Fig. 1. The blank (Fig. 3) from which this box is formed consists of an oblong rectangular sheet of box-board, or the like material, adapted to be folded along the parallel dotted lines 18 and 19 to form the box-sides 20 and 21 hingedly connected with a base 22, and along the dotted lines 23 and 24 to form the box-ends or end-walls 25 and 26, the dotted lines being, by preference, creases to facilitate folding the parts. Each line 18

and 19 intersects the lines 23 and 24 to form the four rectangular corner-sections or extensions 27 of the side-walls of the blank, adapted to be folded inwardly along the outer extremities of the folding-lines 18, 19, 23 and 24 and along diagonal lines 28 (also preferably creases). Each corner-extension 27 is slit along the line 29 extending parallel with the sides of the extensions and along a line 30 extending from the inner end of the line 29 toward the edge of the extension to the middle of the diagonal folding line 28, the lines 28 and 30 preferably being disposed at a right angle to each other. On each end of the blank is a flap 31 reaching preferably from the plane of the folding line 18 to that of the folding line 19, each flap being adapted to be folded at a dotted folding-line 32, as hereinafter described. To form the box from the blank the walls 20 and 21 may be turned upwardly upon their hinged connections with the base 22 to erect position as represented of the wall 20 in Fig. 5. The end-walls 25 and 26 may then be likewise erected, the extensions 27 in this operation folding inwardly upon the dotted lines 28, to cause the triangular sections 33 formed by the lines 28 and 30 and the extremities of the lines 18 and 19, to be folded against the inner sides of the end-walls and the tongues 34 on the ends of the extensions 27 to lie flatwise against the end-walls 25 and 26. The flaps 31, which may then be folded inwardly to overlap the extensions, may be secured in such position in any suitable manner as is well understood in the art, as by fastening-devices, such as those indicated at 35, which preferably pass through the flaps, tongues and end-walls of the box. The box thus formed may be collapsed by folding the side walls inwardly and the end-walls outwardly, to cause the side-walls to lie against the base of the blank, the corner-extensions 27 in this operation springing past the free ends of the flaps and folding along the lines 28 and extensions 28^a of such lines to the position illustrated in Fig. 2, from which condition the walls may be righted by pressing the side-walls outwardly and drawing the end-walls upwardly and inwardly, the free ends of the flaps 31 being manually flexed in this operation to permit the extensions to fold underneath them. Instead of manipulating the blank as described to first erect and then collapse the box, the blank may be folded to the collapsed-box condition illustrated in Fig. 2, without erecting the walls and thereupon applying the fastening-devices for the flaps 31, a collapsed box thus formed being capable of ready erection when desired for use. Referring particularly to Figs. 7 to 10 inclusive, the construction of box therein illustrated differs from that presented by the preceding figures only in the formation of

its corner-portions. The corner-extensions 36 are formed by the intersecting of the lines 18 and 19 with the lines 23 and 24, each extension being preferably severed along the line 37 extending parallel with the lateral edges of the blank, a line 38 preferably extending at a right-angle to the line 37 and reaching from the line 37 to near the central longitudinal line of the extension, and a line 39 preferably parallel with the line 37 and extending from the point of its intersection with the line 38 to the outer end of a diagonal folding line 40, which latter terminates at the intersection of the adjacent folding lines defining the walls of the box. A box may be formed from the blank thus provided by first folding the walls 20 and 21 upon their hinged connections with the base 22 to cause them to extend upward at right angles to the base. The next operation is that of folding the end-walls 25 and 26 upwardly to cause them to likewise extend at right-angles to the base and simultaneously therewith folding the extensions 36 inwardly along the diagonal lines 40 to cause the quadrilateral sections 41 of the extensions defined by the lines 38, 39 and 40 and the extremities of the folding-lines 18 and 19, to lie against the surfaces of the walls 25 and 26, and the tongues 42 provided on the extensions beyond the sections 41, to lie flatwise against the walls 25 and 26. The flaps 31 may then be folded downwardly and inwardly to overlap the extensions and in such position be held in place, as indicated at 43 and described of the construction represented in Figs. 1 to 6 inclusive. A box thus formed may be collapsed by turning the side-walls inwardly and the end-walls outwardly, the free ends of the flaps 31 permitting the extensions to be withdrawn from engagement with such flaps as described of the construction of the preceding figures. The extensions 36 in the operation of collapsing the box unfold along the lines 40 and the extensions 40^a of the lines 40, the tongues 42 remaining in this operation in fixed relation to the end-walls. If it is desired to fold the blank to collapsed-box condition without first righting the box it may be done as described of the construction of the preceding figures.

As regards both of the constructions described in Figs. 1 to 10, inclusive, they may be provided in the collapsed form with fastening-devices secured in place intermediate the ends of the flaps 31 and holding the tongues 34 and 42 in fixed relation to the end walls of the box, so that to erect the box, all that is required is to throw the end-walls upwardly and inwardly, the side-walls outwardly and upwardly and flex the end-portions of the flaps to permit the corner-extensions to extend under them; or the boxes may be provided in the condition represented of the one in Fig. 2, excepting as to the fastened

condition of the end-flaps 31 which may be unsecured to the walls carrying them, excepting at their hinged connections therewith, the application of the fastening means for the flaps 31 being applied after the box is erected. From the foregoing it will be understood that when flaps, such as those illustrated at 31 carried on the end-walls, are used, it is immaterial how they are fastened in place or when such fastening takes place provided that the flaps be fastened in some manner when the box is to be used.

In the construction illustrated in Figs. 11 to 15^a inclusive, the form of blank differs from that illustrated in Figs. 7 to 10 inclusive only in the shaping of the corner-positions thereof. The corner-extensions 44 of this construction are provided with diagonal folding lines 45 positioned similarly to the lines 28 and 40, and are severed along lines 46 parallel with the edges of the extensions, the tongues 47 thus provided on the extensions being preferably of uniform width, as represented, instead of having their outer extremities enlarged as represented of the tongues 42. The blank of this construction may be erected to form a box by folding the side-walls 20 and 21 and the corner-extensions 44 upwardly and inwardly as represented in Fig. 13 and thereupon folding the end-walls 25 and 26 upwardly and inwardly, the corner-extensions 44 in this operation folding inwardly along the folding lines 45 and the tongues 47 extending inwardly and lying against the adjacent end-walls of the box. The flaps 31 may then be folded down and secured in place as by fastening means, such as those represented at 48, passing through the flaps, tongues and end-walls as represented of the one in Fig. 14, the end-portions of the flaps being thus free to be flexed. The box may be collapsed to the position of the one corner-portion represented in Fig. 15 by folding the side-walls 20 and 21 inwardly and downwardly and the end-walls 25 and 26 outwardly, it being designed that the ends of the flaps 31 be flexed in this operation to permit the swinging portions of the extensions to be withdrawn from under the ends of the flaps to lie flat against the base and end-walls as represented, the tongues 49 in this operation of collapsing the box remaining in fixed position with relation to the end-walls by reason of the folding of the corner-extensions along the extensions 45^a of the diagonal folding lines 45. To erect the box from the condition represented in Fig. 15 the operator folds the side-walls upwardly and outwardly and the end-walls upwardly and inwardly, to cause them to extend at right-angles to the base and simultaneously therewith flexes the ends of the flaps 31 upwardly to permit the movable portions of the corner-extensions 44 to fold against the end-walls 25 and 26 of the box, whereupon

the operator by releasing his grasp on the ends of the flaps permits them to spring into the position of the one represented in Fig. 14. It is manifest that instead of first erecting the box before reducing it to collapsed condition, the blank may be folded to form a collapsed box as represented in Fig. 15 from which condition it may be erected to form a box in condition for use, as herein-after described.

While I prefer to provide the box in the collapsed condition represented in Fig. 15 in which the flaps 31 are secured in place to the walls carrying them, thus permitting the box to be erected for use without applying fastening-devices after the box-walls are righted, this is not necessary as the boxes may be provided in the collapsed condition represented in Fig. 15^a, in which the tongues 47 are secured in place against the end-walls 25 and 26 as by fastening-means indicated at 49, and the flaps 31 are in unsecured condition, it being intended that these flaps, when the box is erected, be secured, in any desirable manner, in position to overlie the corner-extensions.

It will be noted that the feature common to all of the forms of the boxes illustrated and described which, it will be understood, may be provided of varying proportions best adapting them for the use to which it is desired they be placed, is that of providing on the foldable corner-extensions of a box, in which each corner-extension is hingedly connected with the adjacent ends of the walls, a tongue which is hingedly connected with the extension carrying it and may be fastened to the adjacent wall for maintaining the corner-extensions in fixed relation to the walls, the object of so constructing the extensions being that of providing means in a so-called "uncut-corner" box, for insuring the maintenance of the extensions in place when the box is set up and aiding in the operation of collapsing and erecting the walls. In the constructions illustrated in Figs. 1 to 10 inclusive, the tongues 34 and 42 are of a width approximately equal to the height of the box-walls and thus in addition to performing the function above stated, they serve to stiffen the walls against which they are secured.

While I have illustrated and described my invention as applied to boxes having flaps such as those represented at 31 on opposed walls for holding the extensions in place, I do not wish to be understood as limiting my invention to boxes employing flaps for this purpose, as any other suitable fastening-means, in addition to the tongues referred to, for holding the corner-extensions in place when the box-walls are erected may be employed.

Throughout the foregoing description I have referred to box-ends and box-sides and

have specifically designated such parts in the drawings, but I do not wish to be understood thereby as limiting my invention in this particular, as such designations have been made merely for the purpose of aiding in the description of the invention. Furthermore, my invention is not only applicable to telescoping boxes in which the two parts are of substantially the same dimensions, but to boxes, the sections of which are of different dimensions, in which case both the body of the box and its cover, or either of these parts, may be constructed in accordance with my invention.

While the fastening tongues in each construction illustrated are so located as to cause their upper edges, when secured to the walls of the box, to extend close to the folding lines for the flaps 31, I do not wish to be understood as limiting my invention to such positioning of the flaps, as they may be disposed at any other desirable point on the extensions, this being desirable in boxes designed for hats or other articles requiring boxes of relatively great depth, in order that objectionable overlapping of the corner-extensions be avoided when the box is erected, in which case the tongues would be located on the extensions farther from the top edges thereof than is represented of the constructions illustrated.

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

1. A collapsible box, comprising a base having opposed walls hingedly connected thereto, and corner-extensions on the inside of the box formed of hingedly connected sections, each hinged to the end of the adjacent wall to form corners of the box and carrying portions hingedly connected with said extensions and held in the interior of the box in substantially parallel position with relation to adjacent walls thereof, for the purpose set forth.

2. A collapsible box, comprising a base having opposed walls hingedly connected thereto, and corner-extensions formed of hingedly connected sections each hinged to the end of the adjacent wall to form corners of the box and having portions hingedly connected thereto along diagonal folding lines and secured to adjacent walls of the box, for the purpose set forth.

3. A collapsible box, comprising a base having opposed walls hingedly connected thereto, corner-extensions formed of hingedly connected sections each hinged to the end of the adjacent wall to form corners of the box and having portions hingedly connected thereto along diagonal folding lines and secured to adjacent walls of the box, and means for holding said extensions in place, for the purpose set forth.

4. A collapsible box, comprising a base having opposed walls hingedly connected

thereto, corner-extensions each formed of sections hingedly connected together along a diagonal folding line and each hinged to the end of the adjacent wall to form corners for the box, tongues formed by slitting the material of the corner-extensions and hingedly connected thereto along diagonal folding-lines and secured to adjacent walls of the box, and means for holding said extensions in place, for the purpose set forth.

5. A blank, for the purpose set forth, formed of a sheet of flexible material having parallel intersecting folding-lines defining walls of the box, with the corner-portions of the blank lying between the folding lines beyond their intersections, formed with diagonal folding-lines and each slit from one edge toward its diagonal folding line to form a tongue, for the purpose set forth.

6. A collapsible box, comprising a base having opposed walls hingedly connected thereto, corner-extensions formed of hingedly connected sections each hinged to the end of the adjacent wall to form corners of the box and carrying portions hingedly connected with said extensions and secured to adjacent walls of the box, and flaps carried by opposed walls of the box and secured to overlap said extensions, for the purpose set forth.

7. A collapsible box, comprising a base having opposed walls hingedly connected thereto, corner-extensions formed of hingedly connected sections each hinged to the end of the adjacent wall to form corners of the box and having portions hingedly connected thereto along diagonal folding-lines and secured to adjacent walls of the box, and flaps carried by opposed walls of the box and secured to overlap said extensions, for the purpose set forth.

8. A collapsible box, comprising a base having opposed walls hingedly connected thereto, corner-extensions formed of hingedly connected sections each hinged to the end of the adjacent wall to form corners of the box and carrying portions hingedly connected with said extensions and secured to adjacent walls of the box, and flaps carried by opposed walls of the box and secured intermediate their ends in position to overlap said extensions, for the purpose set forth.

9. A collapsible box, comprising a base having opposed walls hingedly connected thereto, corner-extensions formed of hingedly connected sections and carrying portions hingedly connected with said extensions and lying against adjacent walls, and flaps carried by opposed walls and secured in flatwise relation thereto by fastening means engaging said flaps and said hinged portions of the extensions, for the purpose set forth.

10. A collapsible box, comprising a base having opposed walls hingedly connected

thereto, corner-extensions formed with
tongues hingedly connected thereto along
diagonal folding-lines and lying against ad-
jacent walls of the box, and flaps hingedly
5 connected with opposed walls and folded
over said extensions and secured in folded
condition with their ends free to be flexed

by fastening means engaging said flaps and
tongues intermediate the ends of the flaps,
for the purpose set forth.

SIEGMUND BACHMANN.

In presence of—

RALPH SCHAEFER,
JOHN WILSON.