

No. 886,710.

PATENTED MAY 5, 1908.

J. W. LOW.  
PAPER BOARD CONTAINER.  
APPLICATION FILED DEC. 7, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

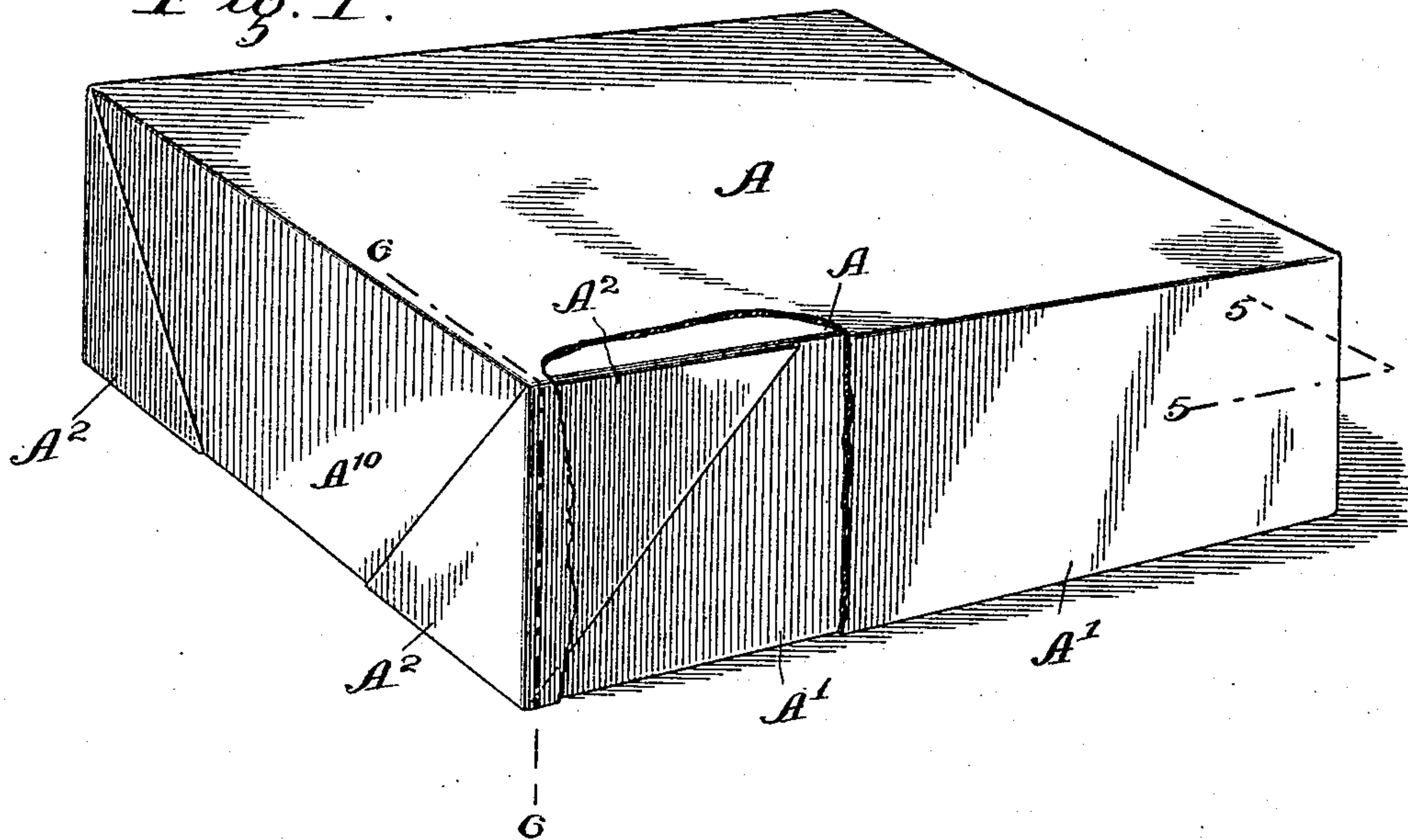


Fig. 2.

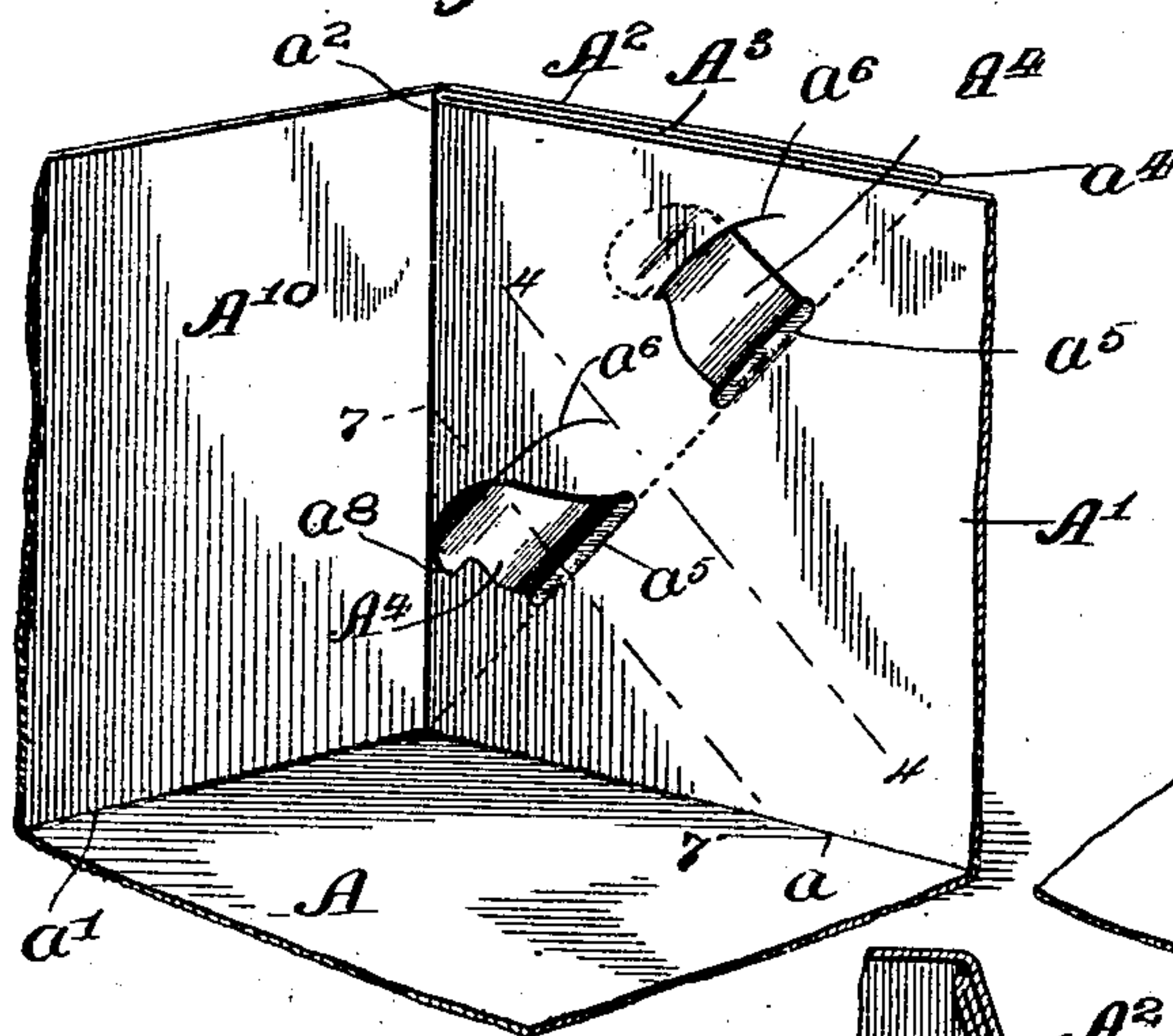


Fig. 3.

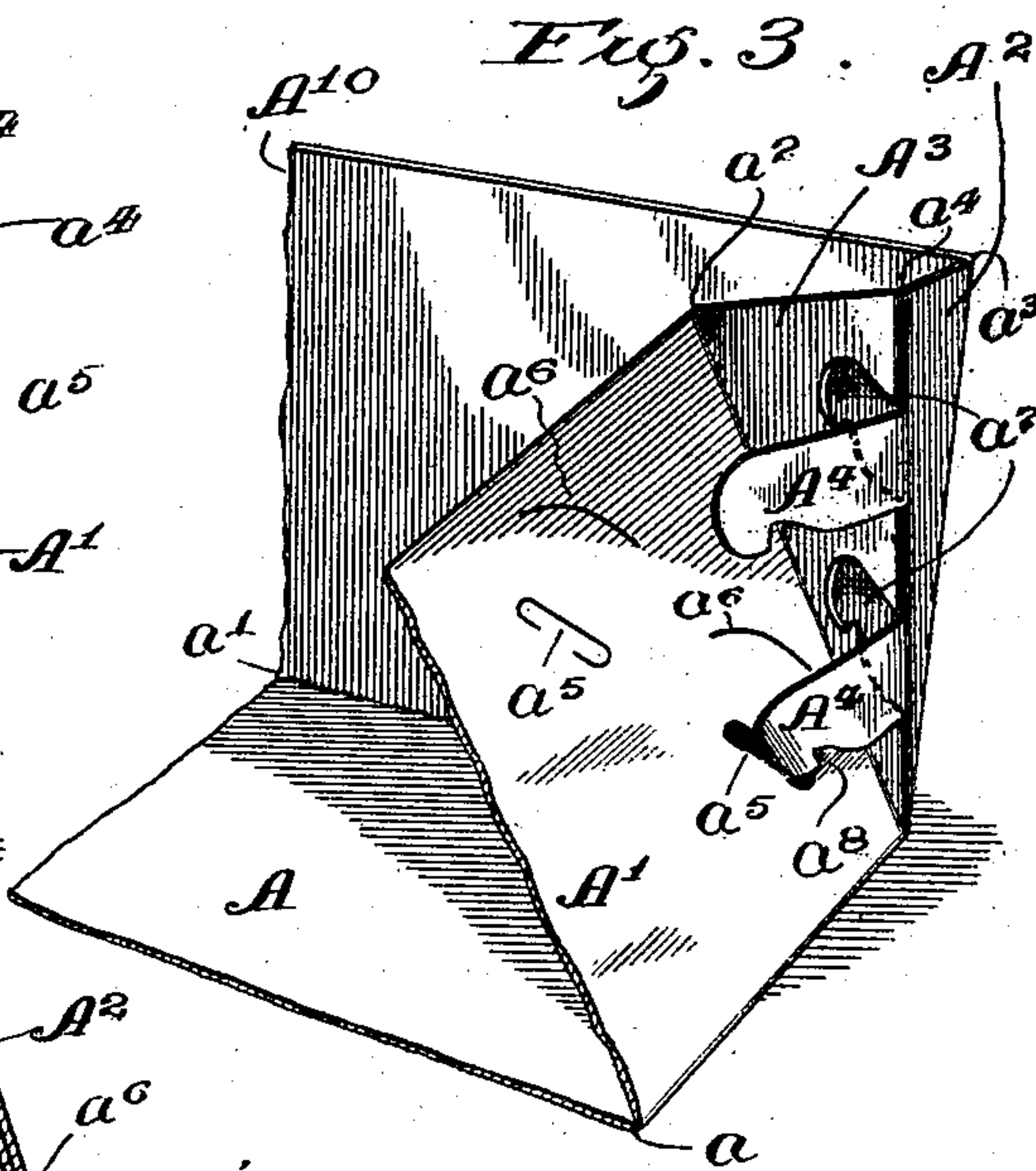
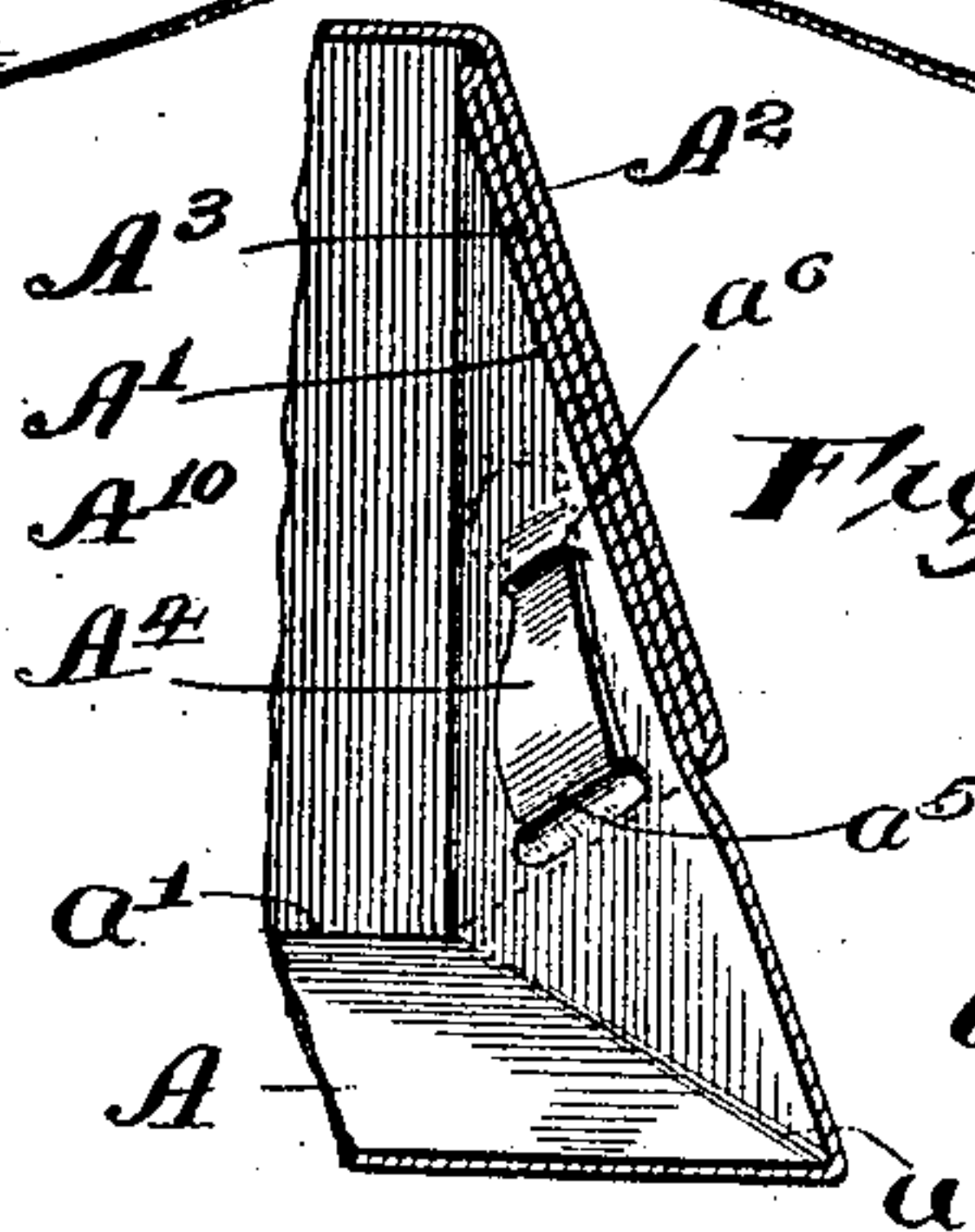


Fig. 4.



Witnesses:  
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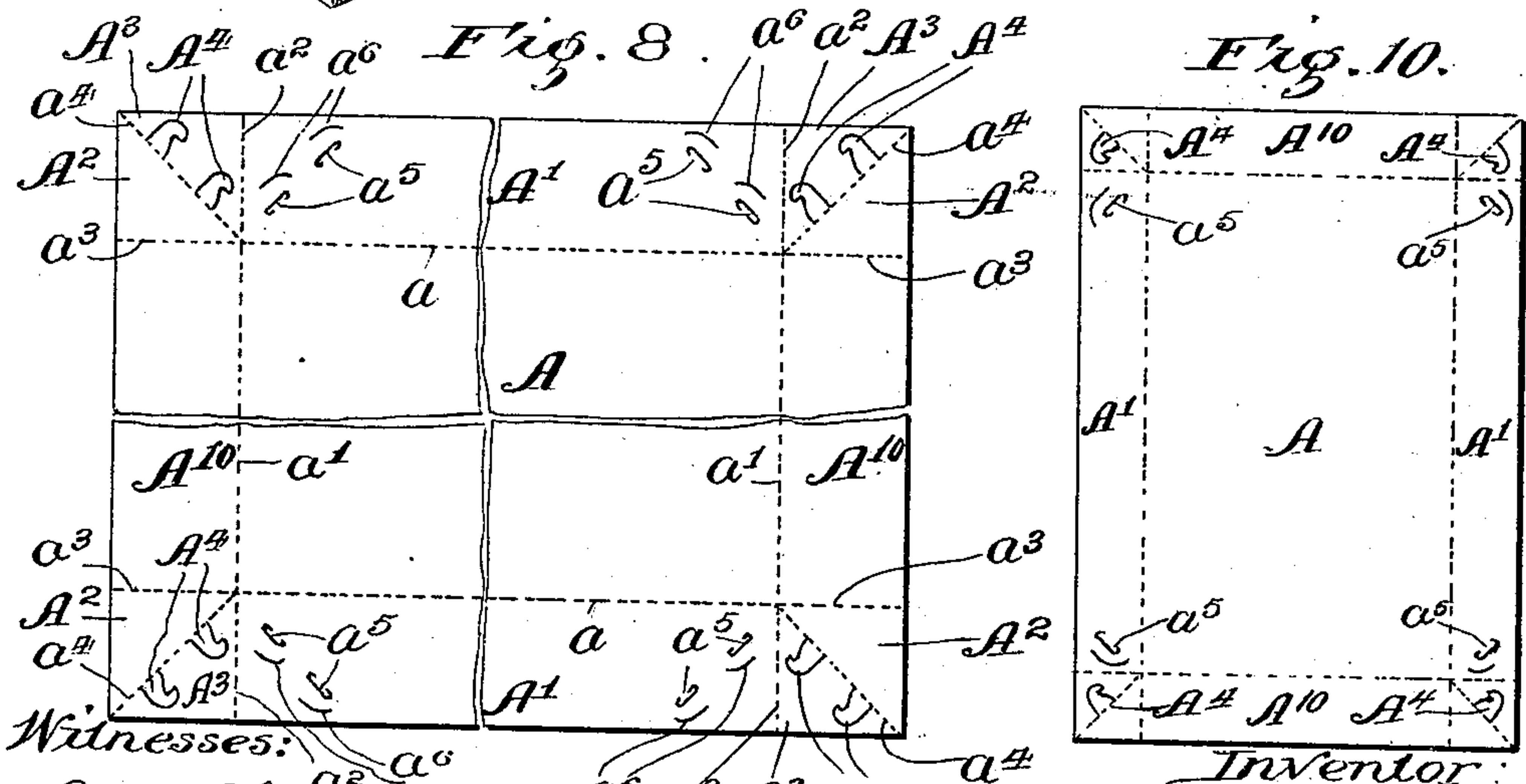
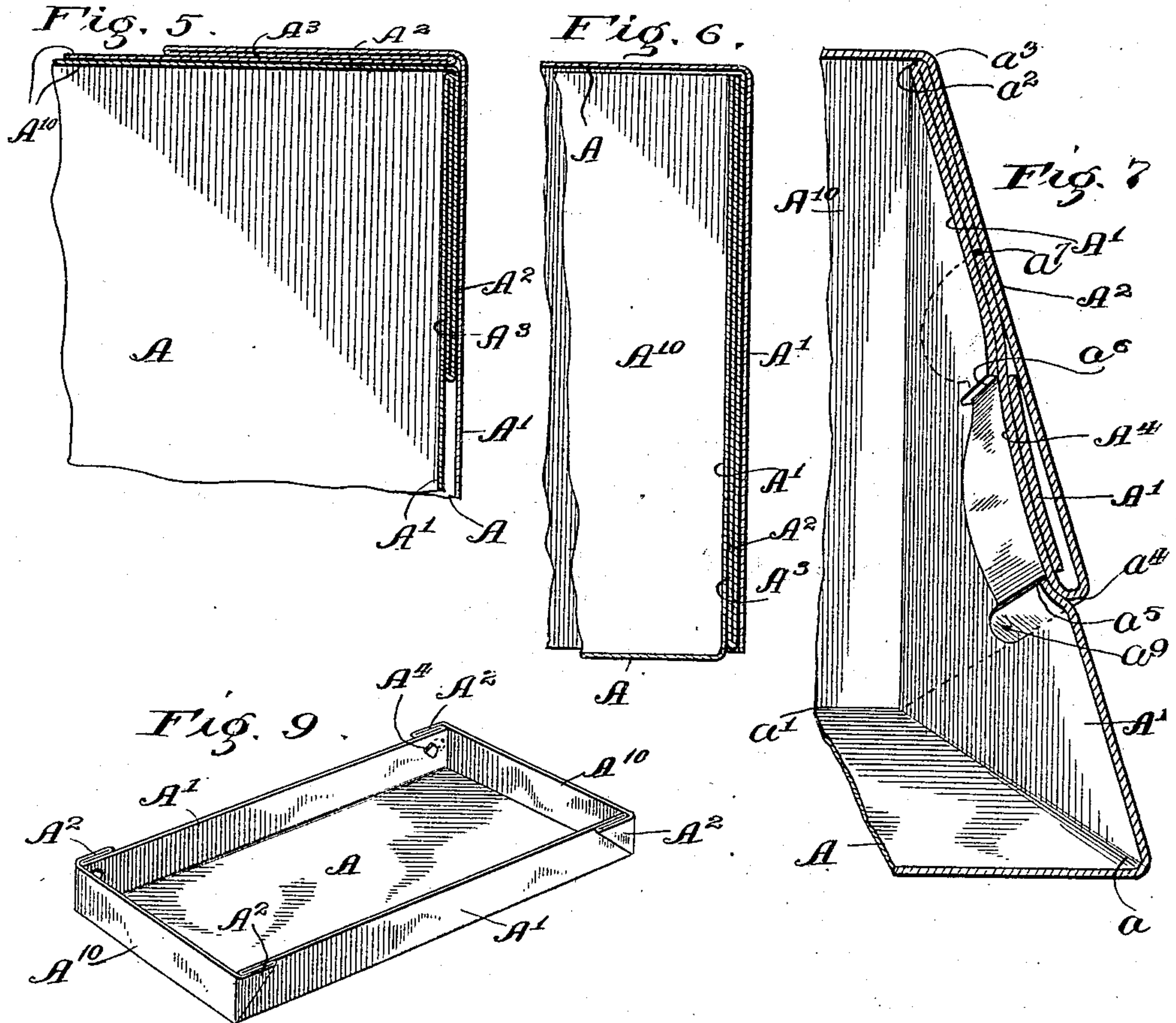
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JOHN W. LOW, OF JOLIET, ILLINOIS, ASSIGNOR TO CARRIER-LOW COMPANY, OF JOLIET, ILLINOIS, A CORPORATION OF ILLINOIS.

## PAPER-BOARD CONTAINER.

No. 886,710.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed December 7, 1906. Serial No. 346,754.

*To all whom it may concern:*

Be it known that I, JOHN W. LOW, a citizen of the United States, and a resident of Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Paper-Board Containers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel box or container made of stiff or heavy paper-board, straw-board and like sheet material.

The invention refers to improvements in boxes or containers of this character designed to be used in place of wooden packing boxes for containing a number of cartons or the like, and also refers to a novel form of corner lock for locking together the meeting or side and end walls of box or container members made of sheet material.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of a container made in accordance with my invention. Fig. 2 is a fragmentary perspective view of the inside corner or one member of the container. Fig. 3 is an outside, fragmentary perspective view, showing the manner in which the wall flaps are folded together to constitute the corner lock. Fig. 4 is a section, taken on line 4—4 of Fig. 2. Fig. 5 is a horizontal section, taken on line 5—5 of Fig. 1. Fig. 6 is a vertical section, taken on line 6—6 of Fig. 1. Fig. 7 is a section, taken on line 7—7 of Fig. 2, showing the locking tongue cut by said section in place. Fig. 8 is a blank, broken away, from which the box shown in the figures before referred to is made. Fig. 9 is a perspective view of a smaller box or container. Fig. 10 is a plan view of the blank from which the box member shown in Fig. 9 is made.

In Fig. 1 is shown an approved form of container, designed more particularly for taking the place of wooden packing boxes for containing a number of cartons or other packages of generally similar form and size, and it comprises two like box members which fit in telescopic relation one on the other. Each member comprises a main or central wall constituting the top or bottom of the con-

tainer, as the case may be, and side and end walls formed by folding marginal flaps at right angles to the main wall and locked together at the corners of the container. The construction herein shown, wherein the side and end walls telescope upon each other substantially throughout their entire depth, is an approved one, for the use referred to, inasmuch as it produces, in connection with the relation of the interfolding corner flaps, hereinafter described, an exceedingly strong and durable construction. However, the box may comprise one complete member, and a cover or top of other construction or varying depth of flanges or side and end walls.

The principle of the invention may also be embodied in a box member having narrow side and end walls, as shown in Fig. 9, which member may be provided with a cover made like itself, or otherwise.

Referring to the construction shown in Figs. 1 to 8, inclusive, the same is made as follows:

The blank shown in Fig. 8 is essentially alike for both members with the exception of the relative disposition of the locking flaps at the corners thereof, as will hereinafter appear. A designates the body of the blank in flat form, and  $A^1 A^{10}$  side and end wall sections, respectively, divided from the body of the blank by score-lines  $a a^1$ , respectively. Said sections are folded at right angles to the body of the blank to constitute the vertical walls of the container member. The blank has the form of an oblong rectangle, but this form will vary to correspond with the form of the finished box. The said score-lines  $a a^1$  extend beyond the corners of the main body of the blank across the end and side flaps, respectively, to the end and side margins of the blank, as shown at  $a^2 a^3$ . There are thus formed between the outer angles of the meeting end and side wall flaps rectangular sections, each of which is divided by an oblique folding line  $a^4$  into two triangular folding sections  $A^2 A^3$  which form a folding flap when the box member is set up, that is, adapted to be folded flat against one of the adjacent vertical walls. The said triangular section  $A^3$  is cut to form one or more locking tongues  $A^4$ , there being two herein shown. Said tongues are joined to the blank at or near the diagonal score-line  $a^4$  that divides the sections  $A^2 A^3$ , thus constituting the latter section a tongue-bearing section. The wall sec-



tions  $A^1$  adjacent to the corners are provided with slits  $a^5 a^6$ . Said slits  $a^5 a^6$  are arranged in pairs, there being a number of pairs of slits at each corner equal to the number of tongues  $A^4$ . The said slits are so disposed that when the sections  $A^2 A^3$  are folded upwardly to form a triangular flap, the tongues  $A^4$  are laced through the slits in the manner hereinafter to be described. The manner of folding said blanks to unite and lock the corners of the side and end walls of the resultant container member will now be described.

In setting up the box from the blank shown in Fig. 8, the wall sections  $A^1 A^{10}$  are folded upwardly at right angles to the body  $A$  of the blank, and in right angle relation to each other, in which position the parts of the blank bearing the score-lines  $a^2 a^3$  at each corner are brought together. The tongue bearing sections  $A^2$  and the intermediate sections  $A^3$ , by this operation, are brought flatwise together as suggested by the positions of the parts in Fig. 3, and fully disclosed in Figs. 4 and 7, and said two sections are thereafter folded flat together to form flaps that fit against the outer faces of the walls bearing the slits  $a^5 a^6$ . The tongues  $A^4$  are thereafter inserted through the slits  $a^5$  into the inside of the box, and are then reversed or folded backwardly upon themselves and the sections  $A^2$  with which they are integral, and laced through the slit  $a^6$ , as more clearly shown in Figs. 2, 4 and 7. The terminal of each tongue is located outside of the slit-bearing wall and between the same and the tongue bearing section  $A^2$ . The said tongues are provided with terminal spurs or projections  $a^8$  which hook down over the lower ends of the slits  $a^6$  to afford interlocking connections of said tongues with the walls containing said slits. It will be observed that, when two or more locking tongues are employed, the inner slits  $a^6$  of the two pairs of slits at each corner are located on an oblique line disposed at an angle to the adjacent margin of the blank approximately the same as the angle between said margin and the oblique line  $a^4$  about which the corner sections are folded. Therefore, when said double corner sections are folded flat upon the walls bearing the lacing slits, the bases of the tongues  $A^4$  are located immediately adjacent to the said slits  $a^5$ , so that when the tongues are laced through the slits  $a^5 a^6$ , the said tongues hold the folded margins of the double triangular corner flaps firmly against the outer faces of the walls of the box member, thus producing smooth and finished connections of said folded corner flaps with the said slit bearing walls. The said inner slits  $a^5$  are shown as made straight, while the outer slits  $a^6$  are curved and are located with their ends out of line with the ends of the slits  $a^5$ . This arrangement enables the tongues to be readily laced through the slits

$a^6$  after they have been passed through the slits  $a^5$  and are thereafter swung downwardly to properly engage the hooked end of the tongues with the end of said curved slits. By reason of the reversed or turned back position of the tongues when laced through the slits  $a^5 a^6$ , and of the manner in which the corner sections are folded together, the openings  $a^7$  in the sections  $A^3$ , which result from cutting the tongues from said intermediate sections, are located in positions to receive the terminals of the tongues in the manner more clearly shown in Fig. 7.

When the box or container is made of heavy material, such as is used when making containers for taking the place of wooden packing boxes for the purpose stated, the slit bearing walls are preferably cut away at the sides of the slits  $a^5$  to form flexible lips  $a^9$ , the purpose of which is to produce openings of ample size to permit tongues to be readily passed therethrough into the box and to be folded back upon themselves. The lip also overlaps the base of the tongue and forms a smooth and closed finish at this point. The number of tongues employed for locking the box or container members at the corners thereof depends upon the depth of the side and end walls of the container, and also upon the particular use that the container is to be put. The container shown in Fig. 1 is adapted to contain a single layer of boxes or cartons, such as are usually employed for packing cereals, arranged on end, and the meeting walls of the container members are shown as provided with two locking tongues. The said container may be made to hold more than one layer of such cartons in which event a greater number of tongues are employed. In Figs. 9 and 10 is shown a box or container having relatively narrow side and end walls and wherein but a single tongue is employed at each corner to lock the walls together.

In the use of containers for packing cartons or like packages, the two members of a container are advantageously made with walls of the same depth, whereby they telescope throughout the depths of said walls. This arrangement is of special advantage when the container members are constructed and arranged as more particularly shown in Figs. 1, 5 and 6. It will be noted that the interfolding corner flaps of each member extend from the top to the bottom margins of said walls (Fig. 6), thus producing, when the members are fitted in telescopic relation one upon the other, four thicknesses of material for the full depth of the container. Furthermore, the said corner locking flaps of the upper and lower members are so disposed that when the members are fitted together the plural thickness of material of the upper member at a given corner is on the side of the corner opposite to that of the plural thickness of the lower member, as most clearly



shown in Fig. 5. When the container is square the tongues and slits at the corners of the blanks for both members of the container may occupy the same relative positions with respect to the meeting wall flaps, but when made oblong as herein shown, the relative positions of said tongues and slits of the blanks of said upper and lower members are reversed in order that the overlapping folds of the upper and lower container members may be brought upon the opposite sides of each corner as stated. It will thus be seen that a complete container embodying my invention possesses great strength at its corners, not only to resist inward or lateral pressure tending to collapse the same, but also to resist vertical stress or pressure tending to crush the corners down as when the container supports thereon the weight of the contents of a number of containers piled thereon.

A corner lock embodying my invention and comprising, in combination with two meeting walls, a tongue bearing flap that is folded flat upon the outer face of one of the walls, and provided with a tongue that extends through a slit in said wall and is folded back upon itself to be laced through a generally parallel slit in said wall, produces an exceedingly strong locking arrangement for holding the walls in place and resisting stress tending to pull the same apart. With this construction it will be observed that tendency to pull one wall away from the other is resisted not only by the loop or fold of the tongue at the base thereof, but is also resisted by the interlocking connection of the terminal tooth or spur *a*<sup>s</sup> of the tongue which interlocks with the slitted wall of the box. Thus such stress tending to pull the walls apart is distributed uniformly throughout the tongue, with the result of greatly increasing the efficiency of the lock. It will be furthermore observed that the lock thus produced avoids projecting parts on the inner or outer face of the container wall.

A further and important feature of the construction herein described resides in cutting the locking tongue from a section that is integral with and is folded flat between the tongue bearing section of the flap and slit bearing wall. This construction adds to the strength of the box or container member at the corners thereof, not only to resist inward pressure, but to also resist downward pressure tending to crush the walls downwardly. Furthermore, it will be observed that these advantages are obtained by the use of a blank of such shape as to avoid any waste material whatsoever, all the material being used to the best advantage for the purpose of obtaining strength.

In making up and filling the container with cartons or like packages, as described, the side and end wall flaps of one member of

the container are first folded upwardly and locked, and thereafter the packages to constitute the contents of the container are inserted into said container member. It is the intent that the container shall be so proportioned to the packages that a prescribed number of packages will fit closely therein and in contact with each other and all the walls of the container. After the packages have been thus placed the upper container member, the walls of which have been previously folded and locked, is fitted to and telescopes upon the lower member. Thereafter a string, strap or the like is wrapped around the outside of the container so as to hold the two members in place and against the contents thereof.

I claim as my invention:—

1. In a paper-board box or container, two walls meeting at an angle, one of which is provided with a pair of slits, a triangular flap integral with said walls folded flat against the outer face of the slit bearing wall and co-extensive at one side with the height of said walls, and a tongue on the oblique margin of said flap, said tongue being folded backwardly relatively to the said flap and laced through said slits.

2. In a paper-board box or container, two walls meeting at an angle, one of which is provided with a pair of slits, a section joined to said meeting walls by score-lines and folded along an oblique score-line to form a double thickness, triangular flap which fits against the outer face of the other wall, a tongue integral with one of the folded parts of the corner section and cut from the other folded part of said section, said tongue being folded backwardly relatively to the flap and laced through said slits.

3. In a paper-board box or container, two walls meeting at an angle, one of which is provided with a pair of slits, a section joined to said meeting walls by score-lines and folded along an oblique score-line to form a double thickness, triangular flap which fits against the outer face of the other wall, a tongue integral with one of the folded parts of the corner section and cut from the other folded part of said section, said tongue being folded backwardly relatively to the flap and laced through said slits, the free end of the tongue lying flat against the outer face of the slit bearing wall and occupying the opening in the intermediate fold of said section from which the tongue has been cut.

4. A paper-board box or container made of a single sheet comprising a flat bottom and marginal sections which, when folded upwardly, constitute vertical walls, corner sections integral with ends of the wall sections and each divided by oblique score-line into two parts and folded one upon the other and against the outer face of one of the vertical walls to constitute a flap, one of said parts



being cut away to provide a tongue which is integral with the other part, said tongues being laced through slits in the walls against which the corner flaps lie and folded backwardly relatively to said corner flaps.

5. A blank for a box or container comprising a main body portion and marginal sections separated from the main body portion by score-lines, corner sections at the corners of the blank occupying the outer angles between said marginal sections and separated from said marginal sections by score-lines, said corner sections being divided by an oblique score-line, and a tongue integral with one of the parts of each corner section and cut from the companion part of said section, the marginal sections being provided at the ends thereof with slits arranged in pairs.

6. A rectangular blank for a box or container comprising a main body portion, four marginal sections separated therefrom by score-lines, rectangular corner sections at the corners of the blank occupying the outer angles between said marginal sections and separated from the marginal sections by score-lines, each of said corner sections being divided by oblique score-lines into two tri-

angular parts, and a tongue cut from one triangular part of each section and integral with the companion part thereof at said oblique dividing line, the wall sections being slitted at the corners of the box, as and for the purpose set forth.

7. A paper-board box or container comprising two members, each composed of a main body wall and inclosing walls, flaps at the corners of said inclosing walls which are folded flat against the outer faces of certain of the walls at the corners and attached to said walls, thereby providing a plural thickness of material at one side of each corner of each member, the said corner flaps being so disposed on the two members that when the members are fitting together the folding flaps of one member, at each corner, are located on the side of the corner remote from the folding flaps of the other member.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 15th day of November, A. D. 1906.

JOHN W. LOW.

Witnesses:

WILLIAM L. HALL,  
GEORGE R. WILKINS.