

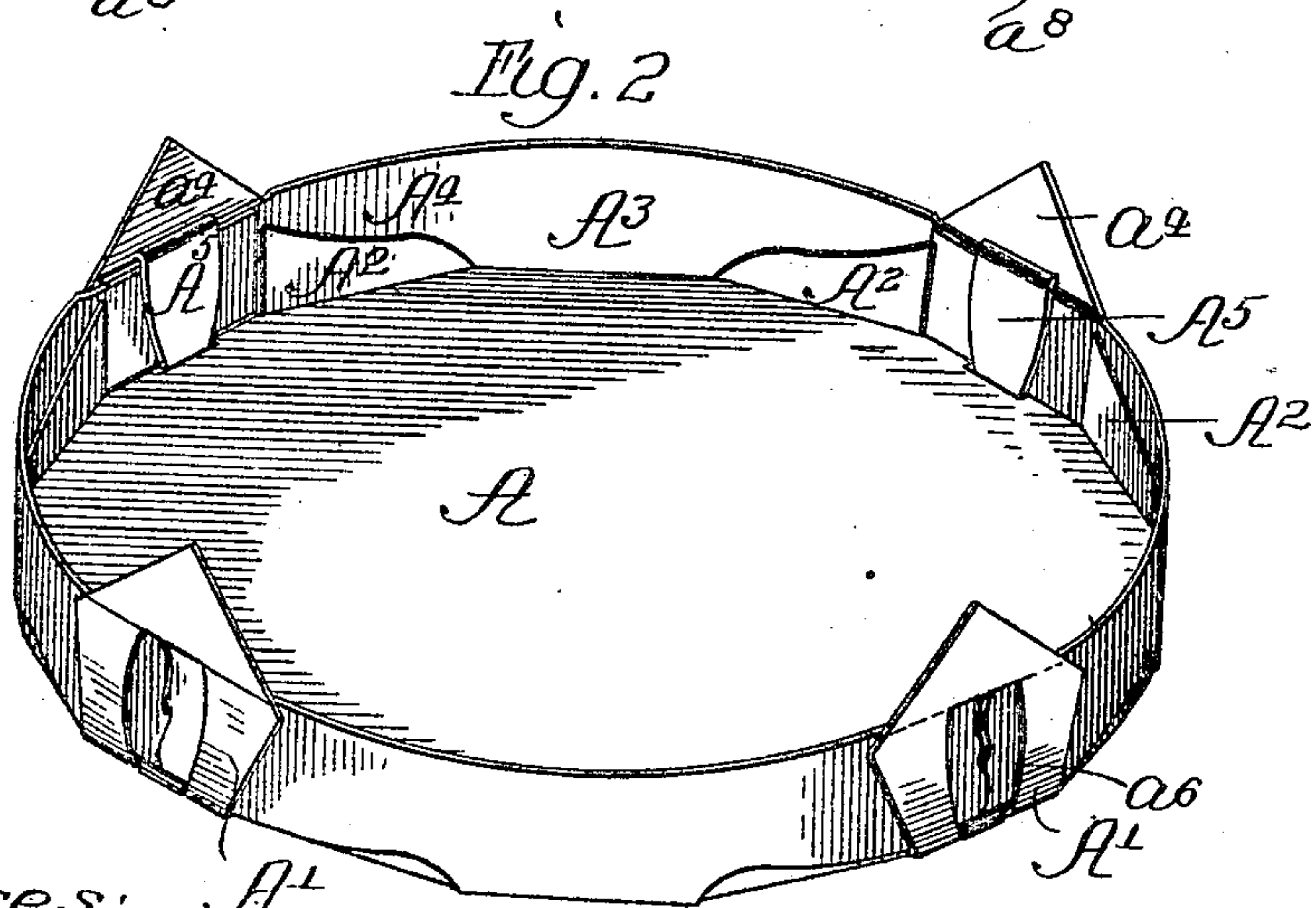
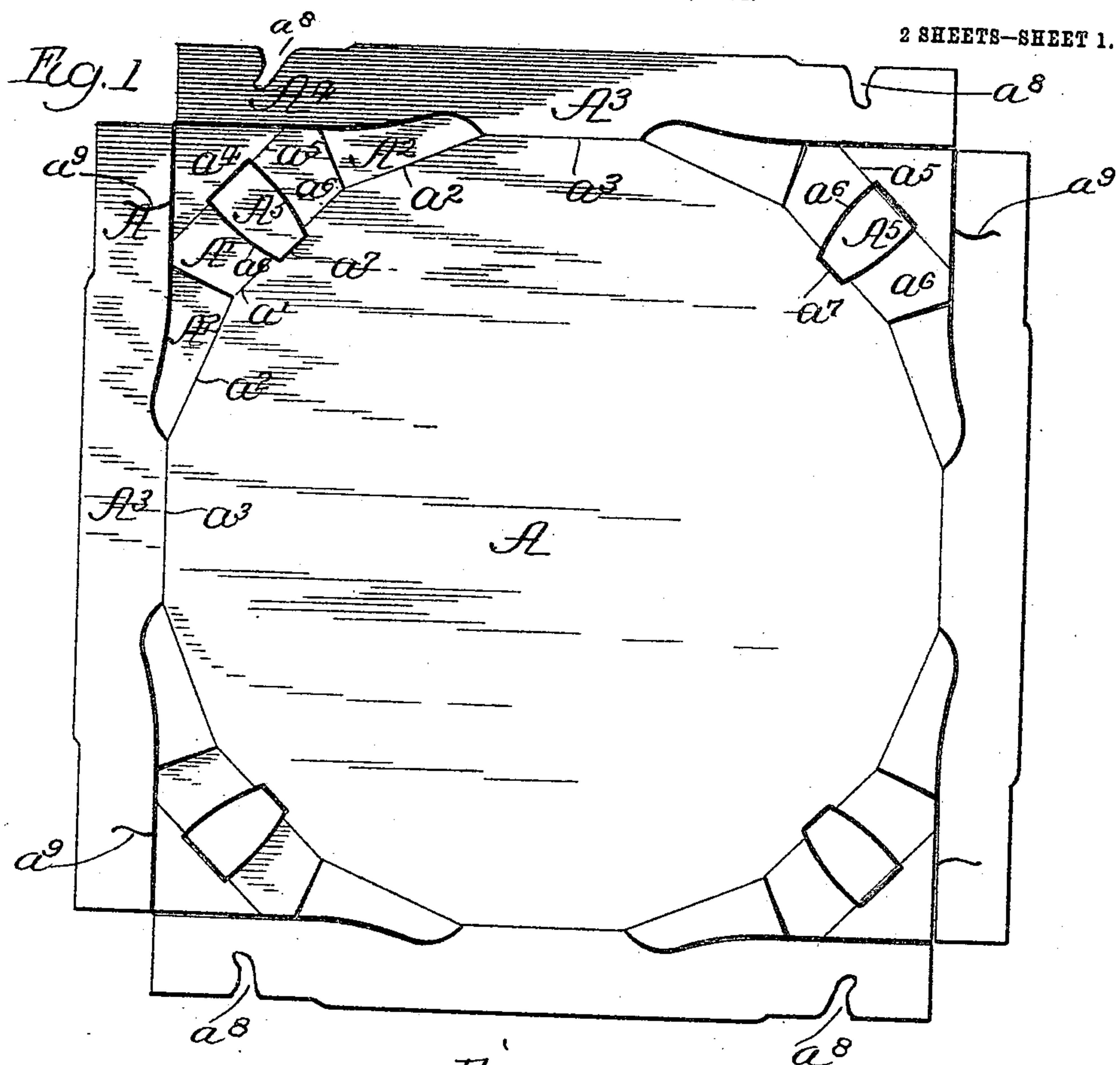
No. 816,302.

PATENTED MAR. 27, 1906.

F. B. DAVIDSON.
PAPER TRAY.

APPLICATION FILED AUG. 22, 1904.

2 SHEETS—SHEET 1.



Witnesses:

W. B. Barrett
George R. Milne

Inventor:

Frank B. Davidson
By Robert Brown
His Attys

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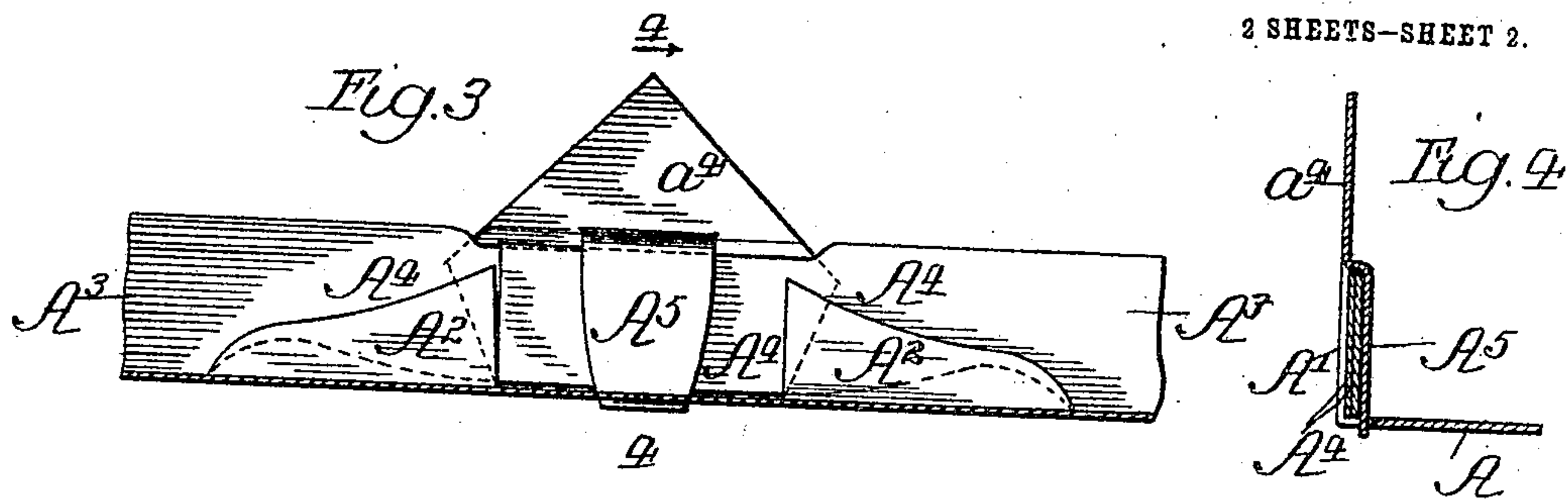
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APPLICATION FILED AUG. 22, 1904.

2 SHEETS—SHEET 2.



Witnesses:

H. E. Barnett
George R. Milkins

Inventor:

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UNITED STATES PATENT OFFICE.

FRANK B. DAVIDSON, OF MARSEILLES, ILLINOIS, ASSIGNOR TO HOWE
AND DAVIDSON COMPANY, OF EAST ORANGE, NEW JERSEY, A COR-
PORATION OF NEW JERSEY.

PAPER TRAY.

No. 816,302.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed August 22, 1904. Serial No. 221,680.

To all whom it may concern:

Be it known that I, FRANK B. DAVIDSON, a citizen of the United States, residing at Marseilles, in the county of Lasalle and State of Illinois, have invented certain new and useful Improvements in Paper Trays; 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 improvements in trays or like receptacles made of paper or other flexible material and provided with a flat bottom and a rim surrounding said bottom, the invention relating more particularly to that class of such trays in which the bottom and surrounding rim are made or constructed of a single flat sheet or blank.

The invention includes the blank from which such trays are made, as well as the tray itself.

The tray herein illustrated is especially applicable for use in packing candies and like merchandise in pails, and when used in this manner the trays are filled and placed in a candy-pail one over the other, said trays thus serving as horizontal separators or partitions by which the layers of candy in the pail are separately supported. Trays having the same features of construction hereinafter described may, however, be used for other purposes.

As shown in the accompanying drawings, Figure 1 is a plan view of a cut and scored blank from which a preferred form of my improved tray is made. Fig. 2 is a perspective view of the finished tray made from the blank shown in Fig. 1. Fig. 3 is a detail sectional view taken through the tray-bottom and showing a part of the inner face of the rim illustrated in Figs. 1 and 2. Fig. 4 is a detail cross-section taken on line 4 4 of Fig. 3.

As shown in said drawings, A, Fig. 1, designates a blank in flat form from which my improved tray is made. The blank is provided on its margin with a plurality of sets of marginal flaps which are symmetrically arranged and uniformly disposed about the margins of the blank, the particular blank illustrated having four of such sets of flaps. It is to be understood, however, that more or less than four sets may be employed, if de-

sired. Each set of flaps consists of five flaps—namely, a center flap A' , two intermediate flaps $A^2 A^2$ at either side of the center flap A' , and two external flaps $A^3 A^3$, said flaps $A^3 A^3$ also coacting with and serving as the external flaps of adjacent like sets of flaps. The said flaps A' , A^2 , and A^3 are separated from the central or body part of the blank which constitutes the bottom of the finished box by means of straight score-lines a' , a^2 , and a^3 , arranged at right angles to radial lines of the blank. Said score-lines are made of equal length and are arranged at equal distances radially from the center of the blank. The several flaps are adapted to be folded upwardly at right angles to the body of the blank along said score-lines to constitute the rim of the tray. Said score-lines being of equal length and arranged at uniform distances from the center of the blank, it follows that when the flaps are so folded upwardly along said score-lines the bottom of the tray will be substantially circular.

The flaps A^3 are provided with straight lateral extensions A^4 , which when the blank is flat stand in line with each other and project tangentially from the margins of the blank outside of the flaps $A^2 A'$. Said intermediate flaps $A^2 A^2$ are separated from the extensions A^4 of the flaps A^3 by lines of severance extending from the ends of the score-lines a^3 in a direction generally parallel with the outer margins of the said flaps A^3 . The said intermediate flaps A^2 are separated from the main or central flap A' of the set by cuts or lines of severance which extend outward from the meeting ends of the score-lines a' and a^2 and which are shown as radially disposed, although they need not necessarily be radial. Said central flap A' is, moreover, made longer at its central part than the other flaps or extends a greater distance radially from the center of the blank, so as to form extensions or tabs a^4 , which are preferably separated from the body of the flap by a transverse score-line a^5 , arranged parallel with the score-line a' and located at a distance from said score-line a' equal to the width of the rim.

The central flaps A' are provided with locking-tongues A^5 , formed by two slits or lines of severance $a^6 a^6$, extending lengthwise of the said flap and extending from points ad-

adjacent to or slightly above the score-line a^5 inwardly to points adjacent to or a short distance inside of the score-line a' and by a third slit or line of severance a^7 , which joins the ends of the slits $a^6 a^6$. The tongue A^5 is thus joined at its base to the flap A' at a distance from the score-line a' practically equal to the depth of the flaps $A^3 A^3$ or the height of the rim to be formed, while its lower end reaches slightly beyond the score-line a' .

When a tray is to be set up or formed from the blank, cut and scored in the manner shown in Fig. 1, the intermediate sections $A^2 A^2$ are bent upwardly at right angles to the bottom along the score-lines $a^2 a^2$. The central flap A' is then bent upwardly along the score-line a' , and the flaps $A^3 A^3$ are then bent upwardly along the score-lines $a^3 a^3$, and their extensions $A^4 A^4$ are brought outside of the flaps $A^2 A^2$ and inside of the flaps A' , with their ends in overlapping relation and beneath the tongue A^5 , which overlaps the said meeting ends of the said extensions. As hereinbefore stated, the said tongue A^5 is made of such length that its lower end extends inwardly past the score-line a' , and the result of this construction is that when the central flap carrying said tongue is bent or folded upwardly at right angles with the bottom of the tray the lower end of the tongue will extend slightly beyond or below the said bottom, and after the parts have been folded as described and the extensions $A^4 A^4$ placed beneath said tongue A^5 the lower end of the latter will be inserted into the lower end of the opening formed by the slits a^6 and a^7 , so as to bear against the edge of the bottom formed by said slit a^7 , as clearly shown in Figs. 3 and 4.

It will be manifest from the above that when the flaps are folded upwardly and interlocked in the manner described a complete rim is formed on the bottom, as illustrated in Fig. 2, and that the ends of the extensions $A^4 A^4$ will be confined against the central flaps A' by the tongue A^5 , the lower end of which will be confined or held by its engagement with the bottom of the tray. All of the flaps will thus be held in a position at right angles to the bottom.

The meeting ends of the extensions A^4 and A^4 may be provided with locking notches or slits $a^8 a^9$, by which said extensions may be locked together and the parts constituting the rim thereby held or locked more firmly to resist outward pressure tending to spread apart the flaps.

The tabs a^4 when the central flaps are folded upwardly extend above the upper edges of the extensions $A^4 A^4$ of the flaps A^3 and constitute lifting-handles by which the tray may be lifted from its place in the pail or inserted therein, as clearly seen in the perspective view, Fig. 2. The score-lines a^5 enable said tabs to be folded inwardly, so that

when the tray is placed in a pail the said tabs will not interfere with the placing of another tray in superposed relation thereto. The presence of the infolded tabs prevents a superposed tray from entering the top of a tray beneath it, or, in other words, said tabs when folded inwardly constitute supports for a superposed tray, preventing the latter from crushing the contents of the tray on which it rests.

When the blank, as shown in Fig. 1, is provided with four sets of flaps, its exterior lines conform practically to a square figure, so that the blank may be cut from sheets of rectangular form with very little waste.

I claim as my invention—

1. A tray made of a single piece of sheet material, comprising a flat bottom and a plurality of sets of marginal flaps, each set embracing a central flap and exterior flaps provided with lateral straight extensions which overlap said central flap, said central flap being extended above the upper margins of the said extensions and provided with a tongue which is cut from the said central flap and is joined at its base to the upper part of said central flap, and which extends over the meeting edges of the said extensions and at its lower end is engaged with the blank below the lower edges of the extensions.

2. A tray made of a single piece of sheet material, comprising a flat bottom and a plurality of sets of marginal flaps, each set embracing a central flap and exterior flaps provided with lateral straight extensions which overlap said central flap; said central flap being provided with a U-shaped slit, the central part of which extends into the bottom and which forms a tongue which is joined at its base to the upper part of the said central flaps and extends downwardly over the meeting ends of said extensions and at its inner end is engaged with the bottom of the tray at the said central part of the U-shaped slit.

3. A tray made of a single piece of sheet material, comprising a flat bottom and a plurality of sets of marginal flaps, each set embracing a central flap, two intermediate flaps and two exterior flaps which are folded upwardly from the bottom on lines of fold having angular relation to each other, the two exterior flaps having lateral straight extensions which are folded outside of the intermediate flaps with their ends inside of the central flap, said central flap having a downwardly-directed tongue which is cut therefrom and extends downwardly from the outer part of the said central flap over the ends of said extensions.

4. A blank for a tray provided with a plurality of sets of marginal flaps which are separated from the central part or body of the blank by means of score-lines arranged at equal distances from the center of said blank and at right angles to the radial lines thereof,

each set of flaps embracing a central flap and two exterior flaps having straight extensions which extend along the outer margin of the central flap, said central flap being provided with a U-shaped slit forming a tongue which is longer than the width of said straight extensions on the exterior flaps and which extends from the outer end of said central flap toward the base of the same.

5 5. A blank for a tray provided with a plurality of sets of marginal flaps which are separated from the central part or body of the blank by score-lines arranged at equal distances from the center of the blank and at right angles to the radial lines thereof, each set of flaps embracing a central flap, intermediate flaps at either side thereof, and two exterior flaps having lateral straight extensions which extend along the outer margins of the intermediate and central flaps, said central flap being extended to form a tab and provided with a U-shaped slit forming a tongue longer than the width of said lateral straight extensions on the exterior flaps and which is joined to the outer part of said cen-

tral flap and extends toward the base of the same.

6. A blank for a tray provided with a plurality of sets of marginal flaps which are separated from the central part of the blank by score-lines arranged at equal distances from the center of the blank and at right angles to radial lines of the blank, each set of flaps embracing a central flap, and two exterior flaps provided with lateral, straight extensions, said center flap being provided with a U-shaped slit the central part of which extends inside of the score-line at the base of said central flap and which forms a tongue which is attached to the outer end of the flap and the end of which extends inside of the said score-line at the base of said central flap.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 19th day of August A. D. 1904.

FRANK B. DAVIDSON.

Witnesses:

FRANCIS M. IRELAND,
MINA MASSEY.