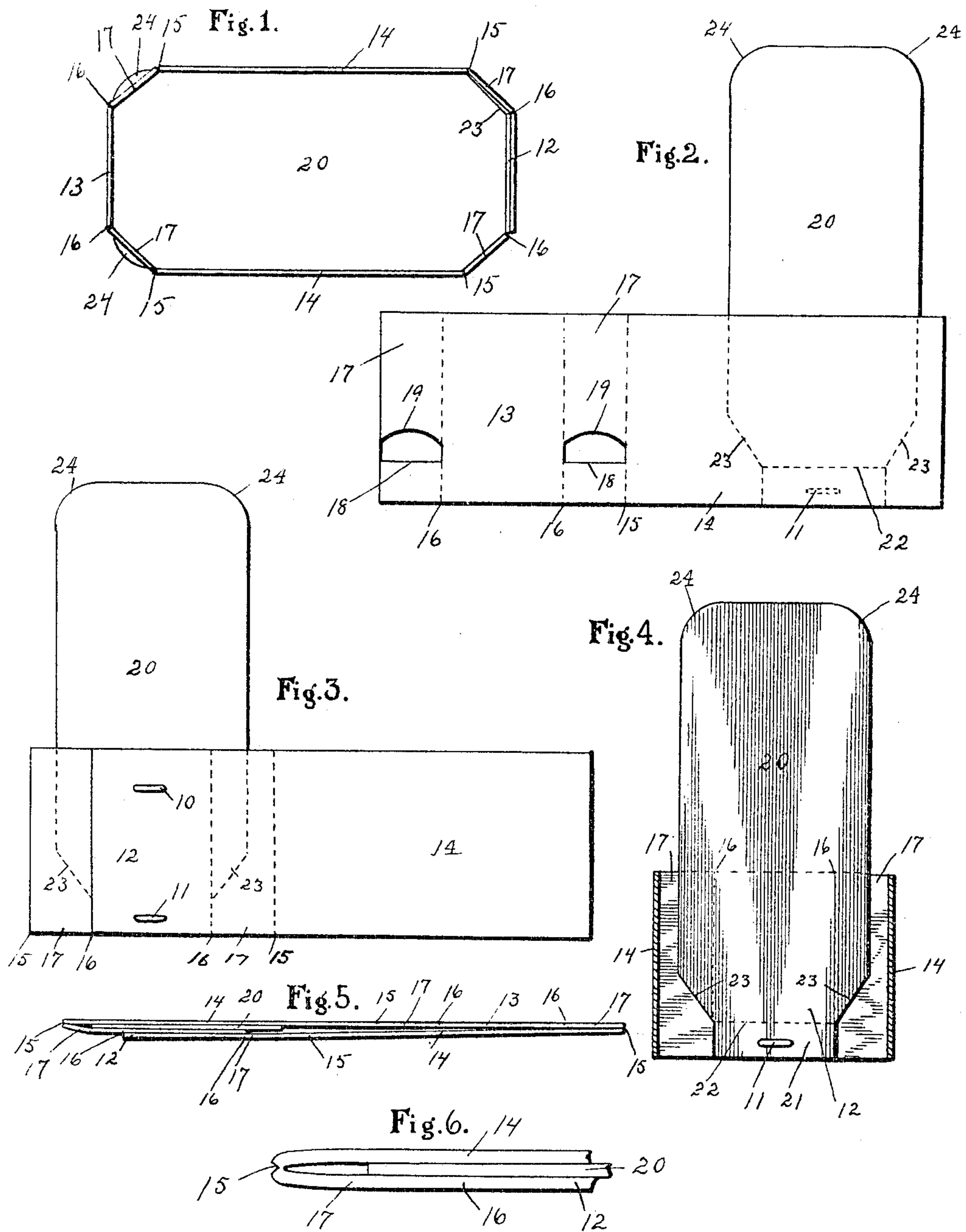


No. 799,221.

PATENTED SEPT. 12, 1905.

A. L. BRADLEY.
FOLDING BOX.

APPLICATION FILED AUG. 16, 1904.



Witnesses:
L. H. Orwig.
A. B. Hague

Inventor *A. L. Bradley*
by *Orwig & Lane*

Attys.

UNITED STATES PATENT OFFICE.

ARTHUR L. BRADLEY, OF BOONE, IOWA.

FOLDING BOX.

No. 799,221.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed August 16, 1904. Serial No. 220,917.

To all whom it may concern:

Be it known that I, ARTHUR L. BRADLEY, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have
5 invented certain new and useful Improvements in Folding Boxes, of which the following is a specification.

The objects of my invention are to provide a folding box of simple, durable, and inex-
10 pensive construction.

My invention consists in certain details in the construction of the box, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying draw-
15 ings, in which—

Figure 1 shows a top or plan view of the box in its position set up ready for use. Fig. 2 shows a side elevation of the box in its folded position. Fig. 3 shows a like view taken from
20 the opposite side. Fig. 4 shows a transverse sectional view through the central portion of the box with the bottom in its elevated position parallel with one of the ends of the box. Fig. 5 shows an edge view of the box in its
25 folded position, and Fig. 6 shows an enlarged detail view illustrating the manner in which one end and one side of the box folds over the bottom piece.

The box is composed of two pieces of thin
30 wood. One piece forms the sides and ends of the box, and the other piece forms the bottom of the box. The piece comprising the sides and ends of the box has its end portions placed in position overlapping each other, and these
35 end portions are connected by means of two staples 10 and 11. In the following description and claims the part of the box to which the bottom is pivoted and the part opposite to the part to which the bottom is pivoted are
40 called the "ends," and the remaining parts of the box are called the "sides." The end to which the bottom is attached is indicated by the numeral 12, the opposite end by the numeral 13, and the sides by the numeral 14.
45 At the intersection of the ends and sides I have scored the material of which the box is formed at points indicated by the numeral 15, so that the material will bend readily at these points. In each end at points slightly sepa-
50 rated from the scores 15 I have formed scores 16 to enable the material of which the box is formed at these points to readily bend. The parts of the ends between the scores 15 and 16 are indicated by the numeral 17. The parts
55 17 of the end opposite from the end to which

the bottom is pivoted are formed with notches having flat bottoms 18 and arched tops 19, the width of said notches being the same as the width of the parts 17. The wood of which the sides and ends are formed is made of a sin-
60 gle piece, and the grain of this piece of wood runs longitudinally thereof, so that the scores formed therein will run at right angles to the grain of the wood, to the end that the wood will readily bend at the scores, but will not
65 break.

The bottom is composed of a single piece of thin wood. The body portion thereof is indicated by the numeral 20 and is of a width to accurately fit against the inner faces of the
70 sides when the box is set up and is of a length to accurately fit against the inner faces of the ends when the box is set up. At one end of the bottom is a narrow extension 21. The wood of which the bottom is formed is scored
75 at 22 on a line at the intersection on the end of the bottom and the said extension. Between the extension 22 and the body portion of the bottom are the inclined shoulders 23, and at the other end of the bottom are the
80 rounded corners 24. The wood of which the bottom is formed has the grain running from end to end, so that the wood will readily bend at the point where it is scored at 22 without breaking. I connect the extension 21 of the
85 bottom with the end 12 of the box by means of the staple 11. In this connection it is to be noted that this staple 11 passes through the bottom, which has the grain running in one direction, and through the end, which
90 has the grain running in a direction at right angles. By thus providing a single staple at this point I avoid the objectionable breaking of the wood, caused by contraction, which ac-
95 companies drying out of the thin layers of wood. The material of which the boxes are formed is frequently cut when the wood is wet, and the boxes are put together when the wood is in this condition, as it is much easier
100 to work when wet than when dry, and it is less liable to break. It is well known that when a piece of wood dries it shrinks very materially in a direction at right angles to the grain of the wood. If, therefore, two layers
105 of wood were connected by two or more staples or other fastening devices and the grain of the layers ran in opposite directions, then as the wood dries and each layer shrinks in a direction at right angles to the grain one
110 or both of the rails must necessarily break

at the point where the fastening devices are located. However, if only one fastening device is used in a case of this kind, then no matter how much the wood shrinks it will not break.

Assuming that the box is in its folded position, as shown in Figs. 2, 3, and 4, the end of the bottom piece is spaced apart a considerable distance from the point at the intersection of the side and end adjacent thereto. This feature of the invention is of considerable importance in that the wood of the box proper will readily fold along the line of the score 15 and the adjacent end and side pieces of the box may be brought to position parallel with and touching the bottom without breaking the wood at the point where it is scored at 15, because the wood between the score 15 and the adjacent edge of the bottom piece may bend, as clearly shown in Fig. 6, whereas if the adjacent edge of the bottom were so arranged that it would lie close to the point where the side and end intersect then if the sides and ends were brought to position touching the sides of the bottom the wood might break at the point where it is scored at 15 adjacent to the said edge of the bottom. It is also important that the sides and ends of the bottom touch the inner faces of the ends of the box when the box is set up, so that the bottom will form a brace for the sides and ends to prevent them from moving relative to each other when set up. It is also of importance that the bottom be permanently attached to the rest of the box, so that the parts of the box will not become lost or misplaced in shipping and so that the boxes will be ready for immediate use at any time, and in order to accomplish all of these results I have formed the scores 16 in the ends of the box and provided the shoulders 23 and 24 on the bottom of the box. In order to set up the box, it is only necessary to swing the bottom downwardly. The sides and edges of the bottom will then engage the sides 14 of the box and force them apart, the shoulders 23 will engage the parts 17 of the end 12 and move them to the position shown in Fig. 1, and the rounded shoulders 23 will engage the parts 17 of the end 13 and force them to the position shown in Fig. 1. The said rounded ends 24 will also pass downwardly through the arched top portions 19 of the notches and project through the notches and then rest upon the flat bottom portion 19 of said notches, thus preventing further downward movement of the bottom. Hence the bottom serves as a brace to prevent the sides from moving together and also to prevent the ends from moving toward each other. The ends of the box when set up are of a length corresponding to the width of the bottom, and the said ends when folded are of a length materially greater than the width of the bottom, so that the adjacent edge of the bottom

when folded will stand spaced apart a material distance from the point where the bottom and sides are folded.

It does not matter what the relative length of the sides and ends of the box are, as obviously the same principles of construction would be involved if the ends were relatively longer than the sides or if they were the same length as the sides.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. A folding box comprising rigid sides, and ends capable of bowing outwardly, one of said ends formed with notches adjacent to the sides, said sides and ends pivotally connected together, and a bottom piece hinged to the end opposite from the one having notches, the ends of the bottom shaped to force the ends of the box to their outwardly-bowed position when set up, said bottom also formed with shoulders designed to enter the notches in the notched end.

2. A folding box, comprising a body portion having sides and ends and formed of a single piece of material, said material formed with scores at the intersection of the sides and ends, said ends each formed with two scores to permit the ends to bow outwardly, notches formed in one of the ends between the scores at the corners of the end and the scores formed in the end, a bottom piece hinged to the opposite end and shaped to force said ends to their bowed position when being set up and formed with shoulders to pass through the said notches.

3. A folding box, comprising a body portion having sides and ends and formed of a single piece of material, said material formed with scores at the intersection of the sides and ends, said ends each formed with two scores to permit the ends to bow outwardly, notches formed in one of the ends between the scores at the corners of the end and the scores formed in the end, the material at the bottom of said notches being straight and at the top of said notches arched, a bottom piece hinged to the opposite end and shaped to force said ends to their bowed position when being set up and formed with shoulders to pass through the said notches.

4. A folding box, comprising a body portion formed of a single piece of wood, the grain of which runs substantially longitudinally thereof, the end portions of the box overlapping and connected by means of a single fastening device running through the wood, said piece of wood formed with scores dividing it into sides and ends and said ends each formed with two scores slightly spaced apart from the side edges of the ends, one of said ends formed with notches at its side edges near its lower edge, and a bottom piece formed of a single piece of wood with a narrow extension at one end and formed with a score

between the bottom proper and the said extension, said extension placed against one end portion of the body between the scores thereof with the grain running substantially at
5 right angles to that of the end of the body portion and connected therewith by a single fastening device extending through the extension and the end, said bottom having inclined shoulders at its corners and shaped to

force the ends of the body portion to bow outwardly when the box is set up and to project through the notches and to rest against the inner faces of the sides and ends. 10

ARTHUR L. BRADLEY.

Witnesses:

T. S. HERRON,
M. L. BRADLEY.