

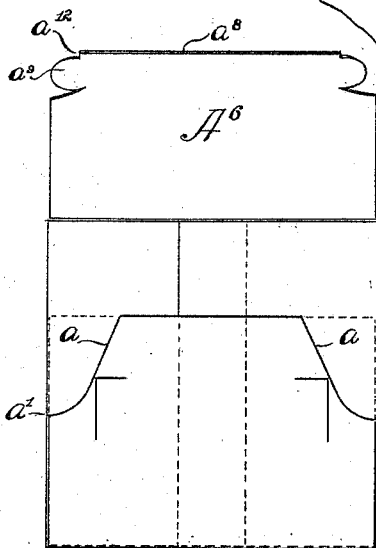
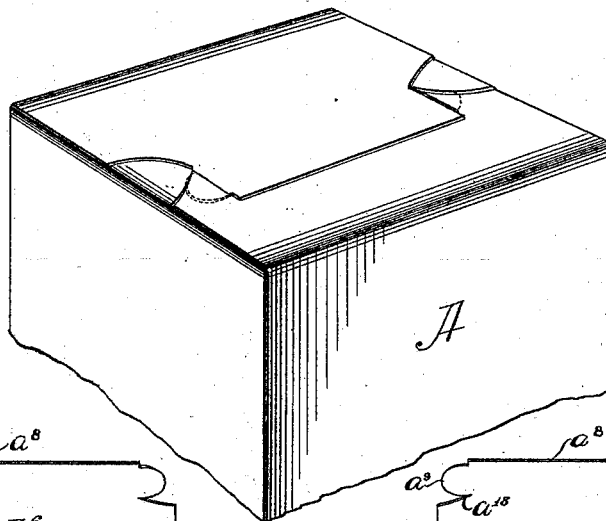
(No Model.)

W. B. HOWE & F. B. DAVIDSON.  
PAPER BOX.

No. 526,782.

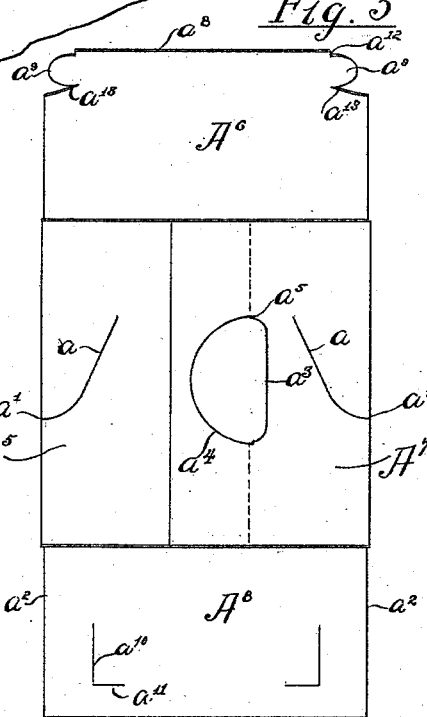
Patented Oct. 2, 1894.

*Fig. 1*

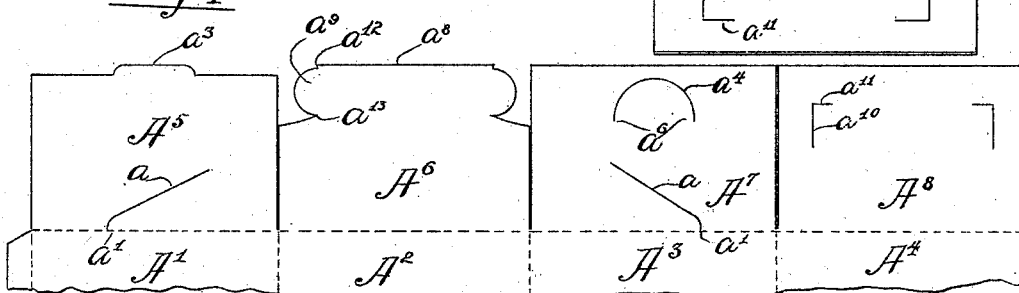


*Fig. 2*

*Fig. 3*



*Fig. 4*



*Witnesses*

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# UNITED STATES PATENT OFFICE.

WARREN B. HOWE AND FRANK B. DAVIDSON, OF CHICAGO, ILLINOIS.

## PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 526,782, dated October 2, 1894.

Application filed June 7, 1894. Serial No. 513,772. (No model.)

*To all whom it may concern:*

Be it known that we, WARREN B. HOWE and FRANK B. DAVIDSON, of Chicago, in the county of Cook and State of Illinois, have  
5 invented certain new and useful Improvements in Paper Boxes; and we 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  
10 of reference marked thereon, which form a part of this specification.

This invention relates to improvements in paper or straw board boxes or cartons, and it consists in the matters hereinafter set forth  
15 and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a perspective view of the upper end of a paper box or carton embodying our invention in one form. Fig. 2 is a top plan view  
20 on a smaller scale of the carton with the top flap lifted. Fig. 3 is a similar view showing both upper flaps lifted. Fig. 4 is a fragmentary view on a smaller scale of the blank from  
25 which the box is formed.

A designates the box as a whole; A', A<sup>2</sup>, A<sup>3</sup> and A<sup>4</sup>, its side walls, and A<sup>5</sup>, A<sup>6</sup>, A<sup>7</sup> and A<sup>8</sup> the flaps which are attached to the edges of the side walls and are adapted to be folded  
30 together to form an end of the box. Said box A is, in this instance, of rectangular form and is herein shown as having all of its sides of equal width, although the same principles of construction may be equally well applied  
35 to a box in which the sides are unequal.

The end of the box is formed severally by the folding together of the opposite flaps A<sup>5</sup> and A<sup>7</sup>, the interlocking of the flaps A<sup>6</sup> with both of said flaps A<sup>5</sup> A<sup>7</sup> and the engagement  
40 of the flap A<sup>6</sup> with the flap A<sup>8</sup>. The flap A<sup>8</sup> is interlocked with the flaps A<sup>5</sup> A<sup>7</sup> by means of diagonal slits *a* reaching to their extreme inner or folded margins and adapted to receive the adjacent corners of the flap  
45 A<sup>8</sup> when the latter is folded down. Each of the slits *a* commences at a point *a'* on the line of juncture of its flap with the side wall to which the flap is attached, and extends diagonally into the flap in a direction away  
50 from the wall A<sup>4</sup> to which the flap A<sup>8</sup> is attached. The starting points *a'* of the slits *a* are considerably less remote from said wall

A<sup>4</sup> than the length of the flap A<sup>8</sup> so that when folded down, as shown in Fig. 2, the side edges of said flap will extend into the slits  
55 *a* and beneath the flaps A<sup>5</sup> A<sup>7</sup> a considerable distance, in this instance nearly half their length; said slits *a* being made just long enough to fully receive the corners of the flap A<sup>8</sup> when folded down. In this  
60 instance the flap A<sup>8</sup> is made rectangular in form and of the full width of the box, so that its side edges reach to and are parallel with the side walls of the box when the flaps are folded together, this form of the flaps ob-  
65 viously being permitted by reason of the extension of the slits *a* to the side walls, in the manner described. After being inserted within the slits *a* the corners of the flap A<sup>8</sup> will obviously engage at their side edges  
70 the upper inner edges of the side walls A' A<sup>3</sup>, and being held down by the flaps A<sup>5</sup> A<sup>7</sup> will serve to strongly brace said side walls against inward deflection. The flaps A<sup>5</sup> A<sup>7</sup> will obviously be held down by the main body  
75 of the flap A<sup>8</sup> while at the same time they will in turn hold the latter flap down by reason of their engagement in the manner described with the corners of said flap. The opposite flaps A<sup>5</sup> and A<sup>7</sup>, in the construction  
80 thus set forth, need not necessarily be interlocked with each other or even overlap one another, but to additionally strengthen the end of the box we have, in this instance, shown them as overlapping, and as interlocked by  
85 means of a tongue *a*<sup>3</sup> and slit *a*<sup>4</sup>, after the manner described in a previous patent, No. 482,480, dated September 13, 1892. The tongue *a*<sup>3</sup> projects centrally from the free edge of the flap A<sup>5</sup> and is adapted when both  
90 flaps are folded down, to enter the slit *a*<sup>4</sup> and closely engage at its inner corners *a*<sup>5</sup> the ends *a*<sup>6</sup> of said slit, so that thereby the two flaps mutually brace each other against sidewise deflections. The slit *a*<sup>4</sup> is preferably made  
95 of semi-circular shape, and the portion of its flap A<sup>7</sup> inclosed within said slit forms an outwardly projecting tongue which may be readily depressed so as to pass beneath the tongue *a*<sup>3</sup>, as the two flaps are folded down, and  
100 thereby guide the same into the slit *a*<sup>4</sup>. Such overlapping and interlocking of the flaps A<sup>5</sup> and A<sup>7</sup> obviously serves in conjunction with the interlocking of the flap A<sup>8</sup> with both of

the flaps A<sup>5</sup> and A<sup>7</sup>, to provide a stronger and stiffer box end, than would be had if the latter flaps did not overlies or interlock.

After the flaps A<sup>5</sup> and A<sup>7</sup> and A<sup>8</sup> have been folded down in the manner described, the flap A<sup>6</sup> is folded down upon them and interlocked therewith to complete the formation of the box end. To effect such interlocking said flap A<sup>6</sup> is in this instance provided at each side and near its outer or free edge a<sup>8</sup> with laterally projecting tongues a<sup>9</sup>. The latter as herein shown are substantially semicircular in outline and are formed by cutting the outer corners of the flap to the desired shape. They are designed to enter laterally into suitable slits a<sup>10</sup> in the flap A<sup>8</sup>, which, in this instance, extend substantially parallel with the side edges a<sup>2</sup> of said flap, and are provided at their outer ends with short slits a<sup>11</sup> extending inward at right angles to them.

As a further improvement the slits a<sup>10</sup> a<sup>11</sup> are so located that when the corners of the flap A<sup>8</sup> are inserted in the slits a the corners of said slits a<sup>10</sup> a<sup>11</sup> extend just to the edges of the slits a, so that when the tongues a<sup>9</sup> are inserted in the slits a<sup>10</sup> a<sup>11</sup> they will also pass a slight distance into the slits a and will thus enter beneath and will be additionally held down by the flaps A<sup>5</sup> A<sup>7</sup>, thereby making an exceedingly strong lock at these points. Obviously the slits a<sup>10</sup> a<sup>11</sup> may be otherwise shaped than as herein shown, it being only requisite that they should be so located and of such configuration as to permit the lateral insertion of the tongues a<sup>9</sup> and direct the latter through the slits a.

As herein shown the tongues a<sup>9</sup> are located a short distance inward from the free outer edge a<sup>8</sup> of the flap A<sup>6</sup> thus forming shoulders a<sup>12</sup> at the ends of the latter which are adapted to engage the ends of the slits a<sup>10</sup> and thereby support the flap A<sup>6</sup> against lateral pressure. Furthermore the notches a<sup>13</sup> which are cut out of the side edges of said flap in forming the tongues a<sup>9</sup>, engage the corners of the slits a<sup>10</sup> a<sup>11</sup> and also the margins of the slits a (see Fig. 1) and thereby afford means for additionally resisting lateral deflection.

The shape of the blank required to produce a box or carton of the construction above described is illustrated in Fig. 4. Said blank is almost perfectly rectangular shape and may be cut from a strip of paper or strawboard of uniform width without material waste, the full rectangular outline of all the flaps being preserved except at the end of the flap A<sup>5</sup>, and at the corners of the flap A<sup>6</sup> where a small amount of material must be removed to form the tongues a<sup>9</sup> and a<sup>9</sup> respectively. As a consequence of such preservation of substantially the full rectangular outline of all the flaps the maximum efficiency of the flaps to resist distortion of the box by pressure on opposite corners thereof or otherwise is secured.

We claim as our invention—

1. A paper or strawboard box comprising

connected side walls and end flaps attached to said side walls, two of the opposite flaps having oblique slits extending to the side walls to which the said flaps are attached, and the intermediate flap being made of the full width of the side of the box to which it is attached and being adapted to engage at its corners with the said slits, substantially as described.

2. A paper or strawboard box comprising connected side walls and flaps attached thereto, one of said flaps being provided with a U-shaped slit forming a tongue and adapted to receive the edge of the opposite flap, and the said flaps being provided with oblique slits reaching to the margins thereof which are attached to the said walls of the box, and an intermediate flap made of the full width of the box and adapted to engage at its corners with said slits, substantially as described.

3. A paper or strawboard box comprising connected side walls and attached flaps, two opposite flaps being provided with slits adapted to engage an intermediate flap, and a fourth flap opposite the intermediate flap adapted to engage slits in said intermediate flap, substantially as described.

4. A paper or strawboard box comprising connected side walls and attached flaps, two opposite flaps being provided with slits adapted to engage the corners of an intermediate flap, and a fourth flap opposite the intermediate flap provided with lateral tongues adapted to engage slits in said intermediate flaps, substantially as described.

5. A paper or strawboard box comprising connected side walls and attached flaps, of which two opposite flaps are provided with slits to receive the corners of an intermediate flap, said intermediate flap being provided with slits adjacent to the said oblique slits when the flaps are folded together, and a fourth flap opposite the intermediate flap provided with lateral tongues adapted to enter the slits in the intermediate flap and to enter the said oblique slits, substantially as described.

6. A paper or strawboard box comprising four connected side walls and flaps connected therewith, two of the opposite flaps being provided with oblique slits and adapted to receive the corners of an intermediate flap, said intermediate flap being provided with slits, and the flap opposite thereto having lateral tongues to engage said slits, and lateral shoulders exterior to said tongues adapted to engage the end of said slits in the intermediate flap, substantially as described.

7. A paper or strawboard box comprising four connected side walls and flaps attached thereto, two opposite flaps being provided with oblique slits to receive the corners of the intermediate flap, and said intermediate flap being provided with slits located adjacent to said oblique slits, and a fourth flap being provided with lateral tongues and with shoulders exterior to said tongues, which latter are adapted to enter the slits in the intermediate

flap and also to extend beneath the adjacent parts of the opposite flaps first mentioned, substantially as described.

8. A paper or strawboard box comprising  
5 four connected side walls and attached end-forming flaps, two opposite flaps being provided with oblique slits extending to the attached margins thereof and adapted to receive the corners of an intermediate flap,  
10 which latter is made of the full width of the said wall to which it is attached, and is provided with slits located adjacent to the oblique slits when the flaps are folded together, and the fourth flap opposite said intermediate

flap being provided with lateral tongues and lateral shoulders exterior to the tongues, said  
15 tongues being adapted to engage the slits in the intermediate flap and the shoulders to engage the ends of said slits, substantially as described.

20  
In testimony that we claim the foregoing as our invention we affix our signatures in presence of two witnesses

WARREN B. HOWE.

FRANK B. DAVIDSON.

Witnesses:

C. CLARENCE POOLE,

W. L. HALL.