No. 622,118. Patented Mar. 28, 1899.

F. L. CHASE.

BOX CORNER LOCKING DEVICE.

(Application filed Dec. 28, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

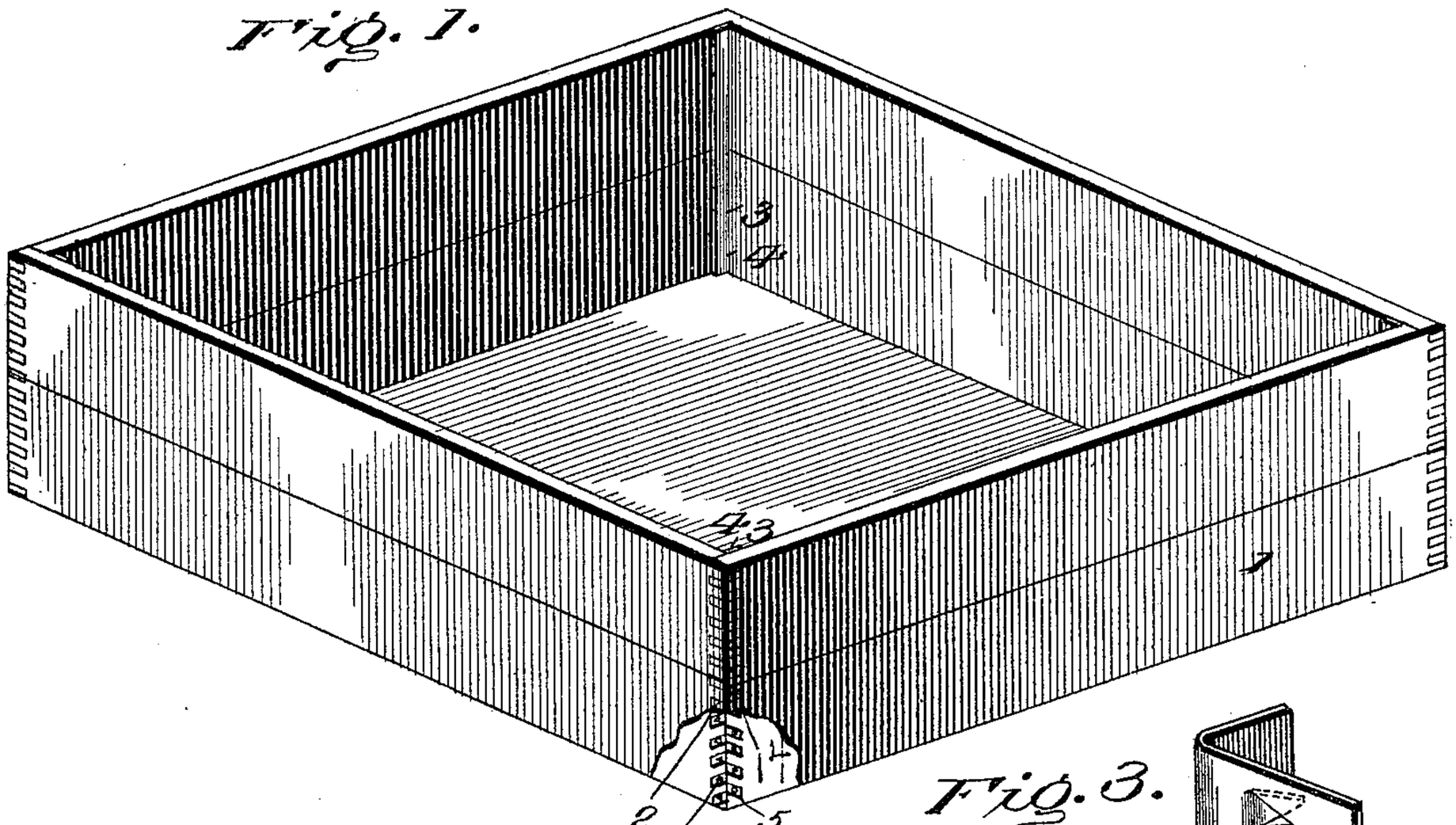


Fig. 2.

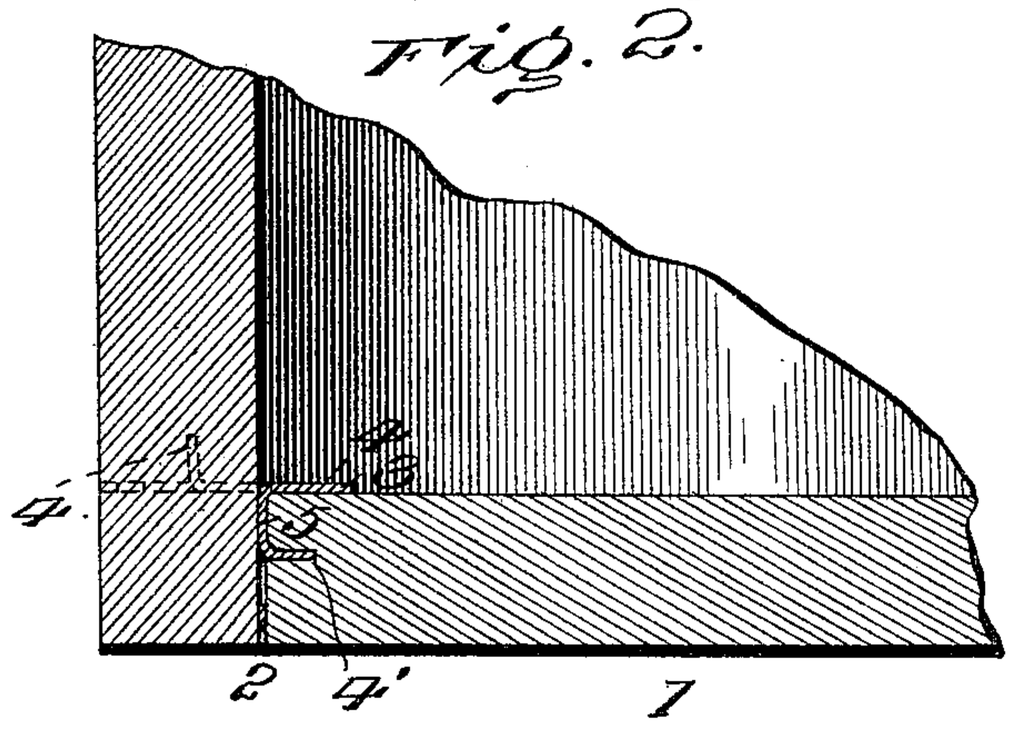


Fig. 4.

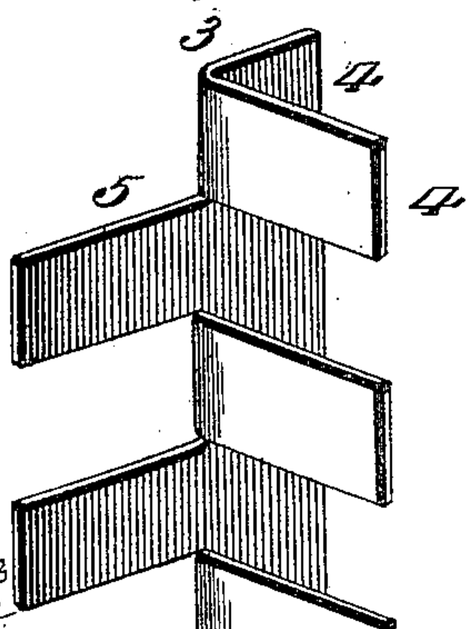
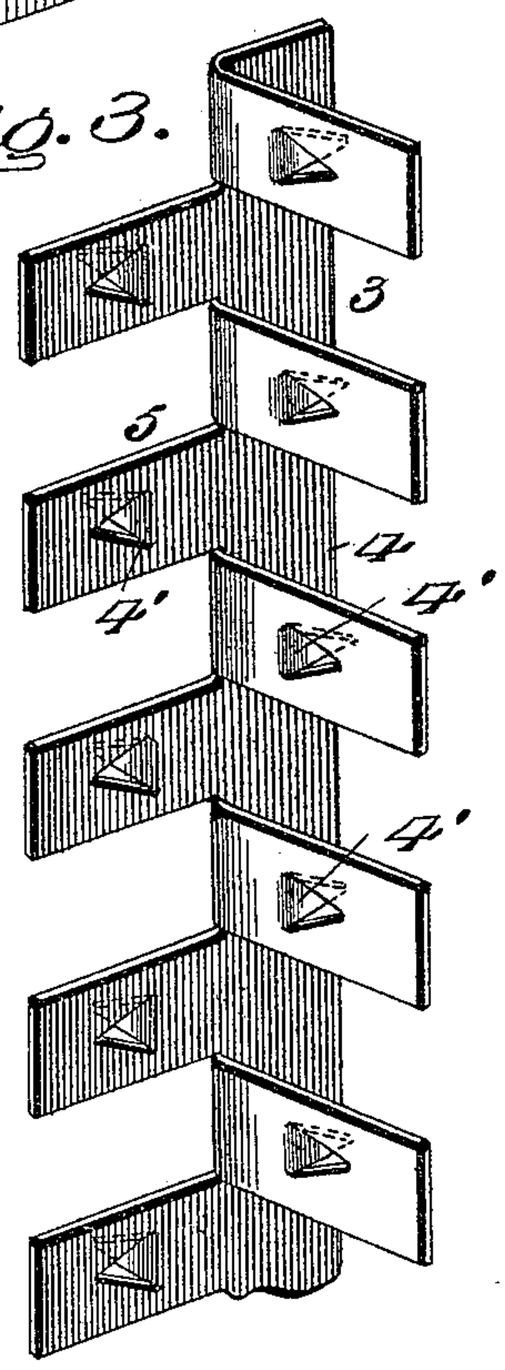


Fig. 3.



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No. 622,118. Patented Mar. 28, 1899.

F. L. CHASE.

BOX CORNER LOCKING DEVICE.

(Application filed Dec. 28, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

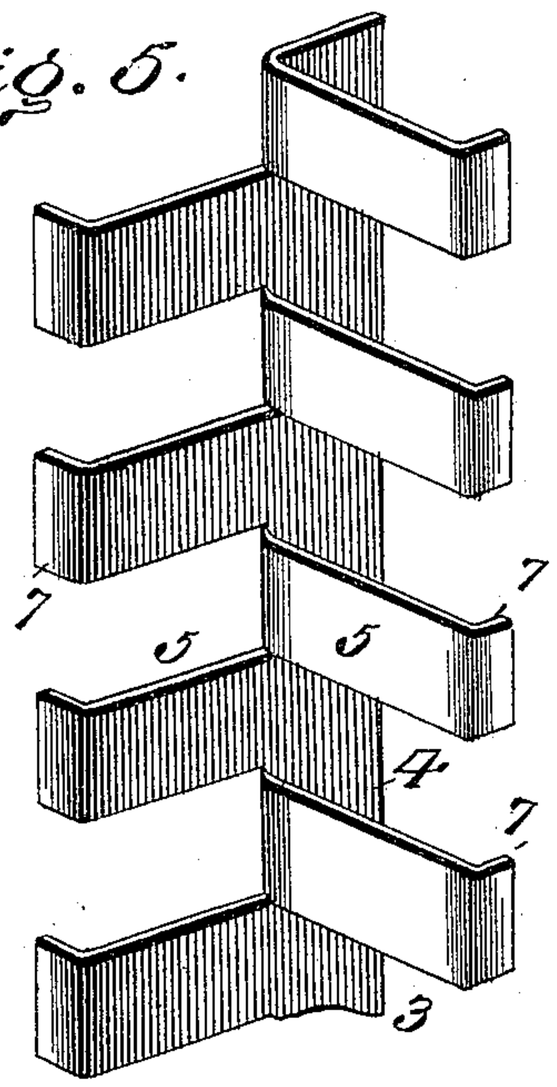


Fig. 6.

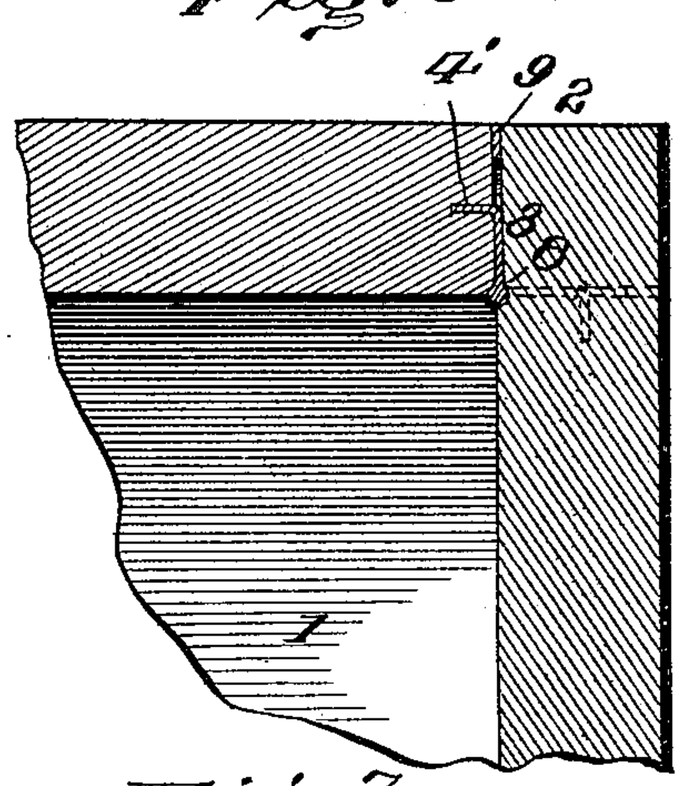


Fig. 7.

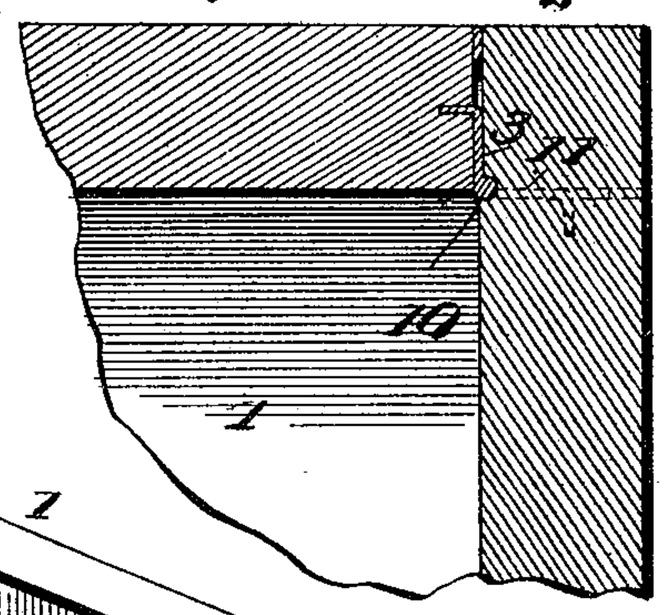


Fig. 8.

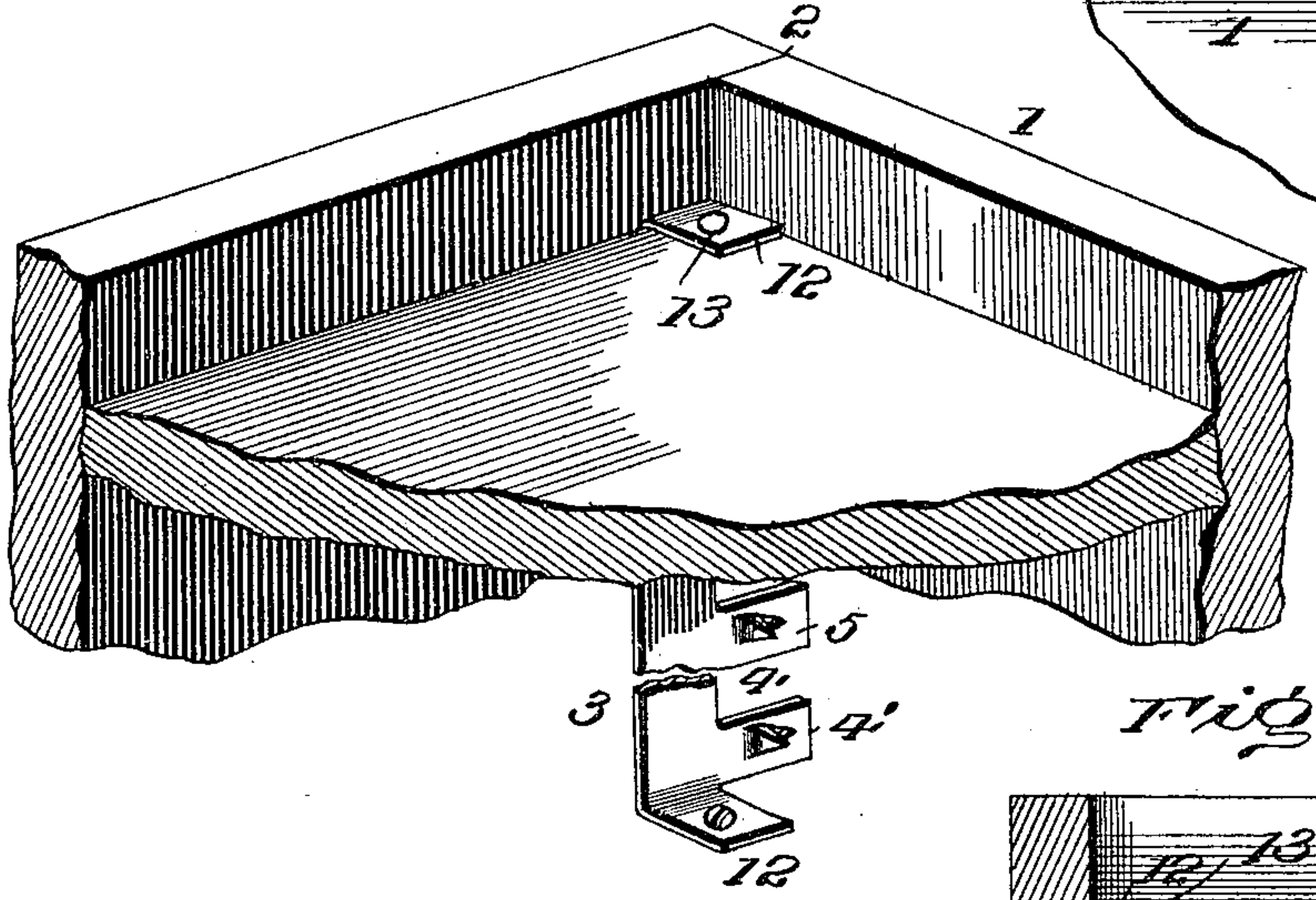
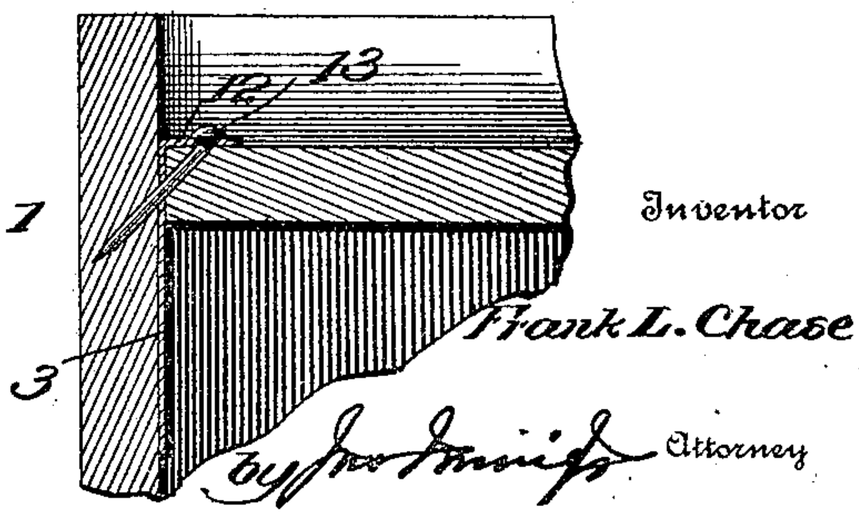


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK L. CHASE, OF LOUISVILLE, KENTUCKY.

BOX-CORNER-LOCKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 622,118, dated March 28, 1899.

Application filed December 28, 1898. Serial No. 700,534. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. CHASE, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented new and useful Improvements in Box-Corner-Locking Devices, of which the following is a specification.

This invention relates to the manufacture of wooden boxes, and more particularly to that class wherein the corners are locked together by dovetailing.

The object of this invention is to provide a neat and at the same time a strong device to be inserted between the ends and the sides of a box.

It consists of a metal strip having a main body portion and flanges stamped out and bent at right angles to each other, so as to fit snugly between the tenons of the dovetailing.

The invention has many other objects, which will be described hereinafter and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 is a perspective view of a box, showing part broken away. Fig. 2 is a cross-section of the same. Fig. 3 is a detail view of my invention. Figs. 4, 5, 6, and 7 are details showing various forms of my improved locking device. Figs. 8 and 9 represent a modified form.

The same numerals refer to like parts in all the figures.

1 represents the sides of an ordinary box having the ends thereof locked together in any well-known manner, preferably as shown at 2. The tenons are cut in the usual manner and have inserted in their meeting edges a metal strengthening-strip 3. The strip is composed of a main body portion 4 and flanges 5, arranged at right angles to each other, so as to correspond to and fit in between the meeting ends of the tenons 2. In each flange is a stamped prong 4, bent at an angle thereto and designed to be forced into the face of the tenons of one side of the box and into the end of the adjoining side when the box is made up. In Fig. 4 this feature is omitted. In Fig. 5 I have shown another way of forming these prongs, which consists in turning the ends of the flanges at right angles thereto, as clearly shown at 7.

In Fig. 6 I have shown the body portion of the strengthening-strip as being made in the form of a round rod 8, the flanges 9 projecting outwardly from said rod, the latter being seated in a groove in the corner of the box.

In Fig. 7 I have shown substantially the same construction as that shown in Fig. 6, except that the strengthening-strip 10 is on the inside of the flanges 11, being seated in a groove in the corner of the box in the same manner as before described.

In Figs. 8 and 9 I have shown the strengthening-strip holding the bottom and top of a box in place in addition to strengthening the corners. In this construction the construction is substantially the same as that shown in Figs. 1, 2, and 3, except that the upper and lower ends of the strip have the right-angle flanges omitted, as indicated at 12 in the drawings. By omitting the flanges, as stated, the top or bottom of a box can be put in place. Then the upper and lower ends of the strip are turned against the top or bottom and a nail 13 passed through the end into the end of the box, through the body of the metal strip, and into the side. I am enabled by this construction to securely hold the top or bottom of a box in place with or without the use of the usual separate device. This construction is more especially adapted to the use of tobacco-boxes.

In the manufacture of lock-cornered boxes means have to be provided to resist the pressure that is brought to bear either in packing or after the box is placed on the market. It has been the custom to provide battens or arrange the running of the grain, and various other means have been used for this purpose, and yet boxes split and pull apart. While devices of this character have assisted in strengthening the corners, they all fall far short of accomplishing the desired end. Moreover, these devices are not neat in appearance and are often very expensive. Also they usually require some cutting away of the wood of the box, which is in itself objectionable. My invention is designed to overcome all these objections, requires no cutting away of the wood, and is so arranged and made as to be almost unseen when in place, it being constructed of sheet metal and can be manufactured at a comparatively small cost. A very important advantage of my invention

is that a box can be constructed of much thinner material than that ordinarily used and at the same time be stronger at the points which are now the weakest.

The tendency of all boxes when pressure is applied, either when being packed or after, is to spread apart at the joints. Moreover, this breaking is not confined to any particular point or direction. In the manufacture of my improved "box-locking device" I have found by experience that a prong projecting from the flanges and pressed into the tenons or into the wood between the tenons of the sides of the box will prevent a lateral break and will equalize the strain on all four corners. I consider this one of the important features of my invention. It is evident that a metal strip inserted between the locking corners of a box will materially strengthen the locking edges, for the reason that should the weakest point of the joint be at the top it cannot give way by reason of the metal being securely held at another point, and to effectually lock this weak point the prongs are used. The combination of the two elements just mentioned is the essential of my invention and will absolutely prevent the box from splitting and pulling apart under all practical conditions.

Another feature of my device is that more than one piece of material can be used for forming the sides and ends of a box, and the joints of these sections can meet at the corner in the same plane, as shown at 14. Under the old way of constructing boxes it was necessary to stagger the sections forming the sides and ends in order that the parts would hold together. I am enabled to overcome this objection by the use of my invention, the same ideas being carried out as before stated, viz: The weak point being at the meeting of the joints of the side sections, the metal strip compensates for the weakness, making the parts stronger and at the same time cheaper, owing to the fact that no attention need be paid to the arrangement of these joints at the corners.

In the manufacture of this device I propose to stamp it from one piece of metal. This will cause a bur to form around the edges, which will seat itself in the wood when the box is put together and will afford an additional means of locking the sides together. Each flange acts independently, their arrangement being such that the independent locking effectually strengthens the whole box-corner from top to bottom, thus increasing the holding power at the proper point.

From the foregoing description, taken in connection with the drawings, it will be seen that I have provided a locking device for box-corners which is simple in construction and inexpensive to manufacture.

I am aware that many minor changes may be made without departing from the spirit and scope of my invention. For instance, the metal flanges might be made longer, so as to extend beyond the ends of the box and then be turned down and nailed, or the flanges may be considerably shorter, so as to project only a short distance between the tenons, or the metal flanges might be made with projections or prongs on both sides instead of on only one side, and when these projections are forced into the adjacent wood their holding power is still further increased.

Having thus described my invention, what I claim is—

1. A device for locking box-corners, consisting of a metal strip, having flanges projecting therefrom, to fit between the tenons on the ends of the sides and ends of a box, substantially as and for the purpose set forth.

2. The combination with a box, the corners and sides and ends thereof being dovetailed, and a metal strip inserted in the meeting ends of the sides and ends of said dovetailed corners, substantially as and for the purpose set forth.

3. A device for locking the corners of a box, having a main strip or body portion, flanges projecting outwardly and in a plane therewith, and alternate flanges projecting at right angles from the body portion, substantially as and for the purpose set forth.

4. A device for locking dovetail corners of boxes, having a body portion, alternate flanges arranged at right angles thereto, prongs projecting from said flanges to be seated in the tenons of the dovetail ends of the sides of a box, substantially as and for the purpose set forth.

5. A device for locking dovetail corners of boxes, consisting of a main body portion, and flanges projecting therefrom, and burs projecting from the body portion and the flanges, substantially as and for the purpose set forth.

6. A device for locking dovetail corners of boxes, consisting of a body portion either round or flat, having alternate flanges projecting therefrom, the ends of said flanges turned down and bent at right angles thereto forming prongs, to be seated in the wood when the box is put together.

7. A device for locking dovetail box-corners and the top and bottom of the same, consisting of a body portion, having flanges projecting from said body portion, and inserted between the tenons of the ends and sides of the box, and the flanges omitted a short distance from the top and bottom of said body portion, the same being turned down and nailed, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK L. CHASE.

Witnesses:
EDW. C. MUMPHRIE,
T. V. JOHNSON.