

**No. 708,702.**

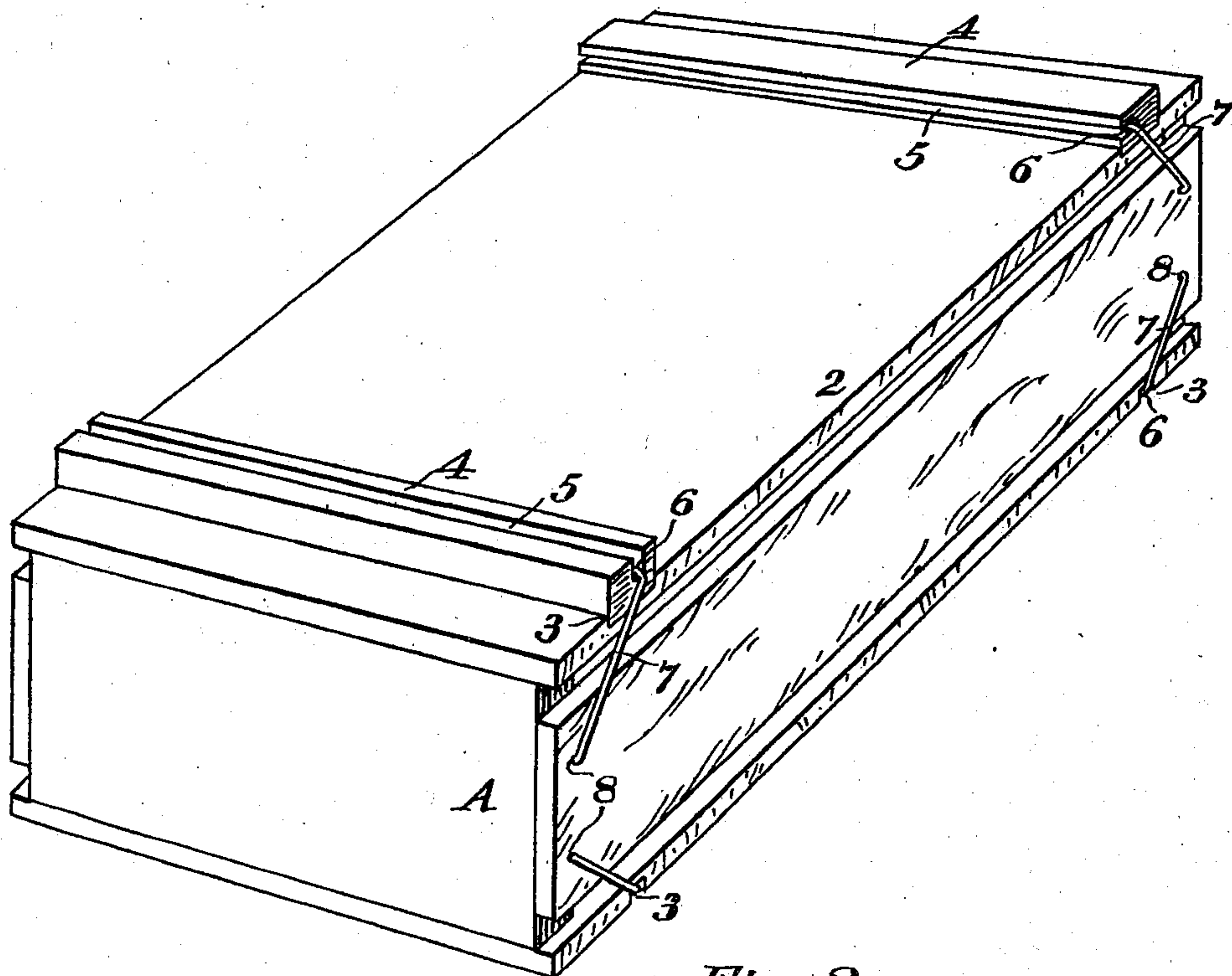
**Patented Sept. 9, 1902.**

**E. FLETCHER.**  
**BOX FASTENING.**

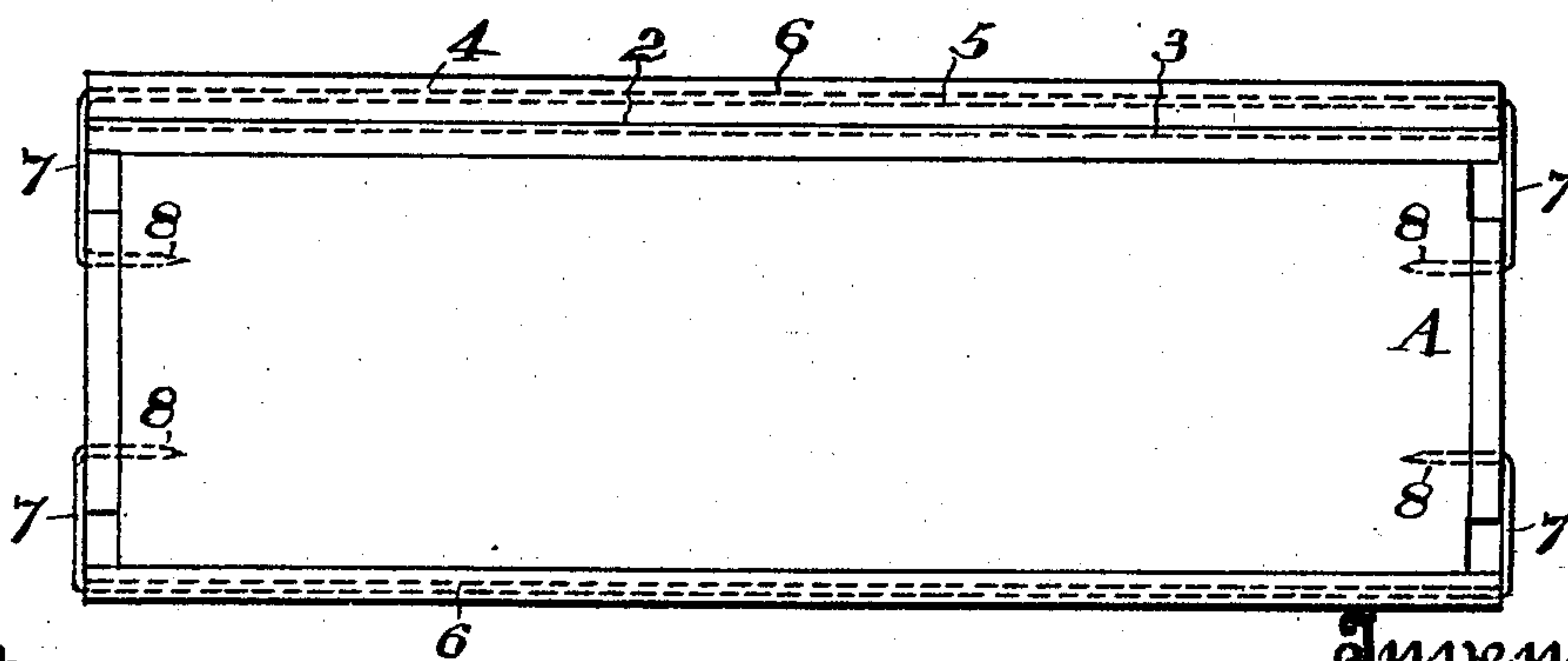
(Application filed Mar. 20, 1902.)

(No Model.)

*Fig.1.*



*Fig. 2.*



Witnesses,

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# UNITED STATES PATENT OFFICE.

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## BOX-FASTENING.

SPECIFICATION forming part of Letters Patent No. 708,702, dated September 9, 1902.

Application filed March 20, 1902. Serial No. 99,143. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD FLETCHER, a citizen of the United States, residing at San Francisco, county of San Francisco, and State of California, have invented an Improvement in Box-Fastenings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improvement in removably securing box-sections and also the transverse strips which are to be attached thereto in order to leave space for ventilation when the boxes are shipped in quantity or piled one upon the other.

It consists in forming the covers with transverse grooves on the top near each end, in which grooves the separating-strips may be placed, and in combination with these I employ wires which fit into grooves or channels in the covers or in the transverse strips and extending diagonally outward and downward therefrom, the ends being bent at right angles, so as to be inserted into the sides of the box. The opposite slant of the wires serves to lock the parts in place, and they are removable by simply detaching the ends from the sides of the box.

Referring to the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is an end view.

For the shipment of fruit and other perishable articles it is customary to employ light open-work wooden boxes of various dimensions, and where the boxes are to be shipped in quantity they must be piled one upon the other. In order to ventilate such boxes and prevent deterioration of the contents, it has been found necessary to separate them, so as to provide for the circulation of air while in transit. This separation is usually effected by means of transverse strips nailed upon the tops of the boxes, so that each superposed box rests upon the strips on the top of the box below, and thus a sufficient space is left for the ample circulation of air. These covers when nailed to the end pieces of the box must be destroyed to open the box and the expense of nailing the strips to the cover and the cover to the box is considerable.

It is the object of my invention to provide

a means for securing the parts of the box without nails and to simultaneously secure the strips to the cover so that the parts are held firmly together when closed and may be readily opened and separated without destruction or loss.

I have here shown the device as applied to fruit-boxes for containing fruits of any description and in packages of a size which may be sold directly to the user—such as two, five, or ten pounds, &c. As hereshown, the boxes are formed of end pieces and sides and bottoms of narrow separated strips fixed to the ends, as shown at A. The tops are formed of boards, which are sawed the proper length and at the same time have channels or grooves made across them near the ends. This work is done by two saws mounted upon the same arbor and separated a distance equal to the desired length of the covers, and between these saws are fixed other saws so placed as to make a wabbling cut of such depth as may be desired in the top of the box. This cut is of a width which will receive the rectangular strips, and when the covers are thus formed it is only necessary to lay them upon the tops of the box and lay the strips in the grooves or channels. These strips have grooves or channels sawed lengthwise in them of such a size and depth that the wires may lie in the channels. The wires are sufficiently longer than the width of the box, so that they can be bent down close to the sides of the box and the ends of the strips, as shown at 7, and the ends of the wires are again bent at right angles, as shown at 8. These ends may be sharpened or so prepared that they can be driven into the sides of the box. The channels are made at a short distance from the ends of the box, and when the strips have been laid in these channels, the wire laid in the grooves in the strips, and the ends of the wires driven into the sides of the box these wires will stand at a considerable angle diagonally outward from the strips to the points where they are driven into the end of the box. This angle is such that each wire forms a brace in one direction to prevent the cover and strips from being moved, and the parts are at the same time firmly held to-



gether. The width of the strips and the depths of the channels in the strips are such that the strips cannot be turned over, but will be firmly locked in the grooves in the top of the box.

5 In order to open the box, it is only necessary to pull out the ends of the wires which have been driven into the sides, and both covers and strips are entirely separate.

10 When the covers are to be secured upon boxes where the transverse strips are not needed, the grooves or channels made across the tops of the box are of only sufficient width and depth to receive the transverse portions of the wire which are otherwise secured in 15 the same manner as previously described.

By this construction it will be seen that sides, ends, and tops of boxes, as well as the transverse strips, may be united without the 20 use of nails in any part by making the ends of the wires which are driven into the sides of sufficient length to be driven through into the ends, thus fastening the sides to the ends, while the angular or inclined position of the 25 wires from these points to points where they cross the top and bottom serve to lock these parts firmly and prevent end movement.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

30 1. The combination with boxes and the like, of covers having grooves or channels in their outer surfaces a short distance from the ends, and wires fitting said channels and having their ends extending divergently along the 35 sides of the box and intumed and driven through the sides to lock the latter and the covers in place.

2. A box or similar receptacle including 40 nailless sides, ends and tops said tops having grooves or channels across their upper surfaces, in combination with wire bails fitting said grooves or channels and having their op-

posite ends bent and extending divergently over the sides, and with the extremities of 45 said bent portions turned inward and driven through the sides into the end portions of the box thereby securing the parts of the box independent of nails or other fastening means.

3. A box or receptacle and a cover therefor, 50 said cover having parallel transverse grooves or channels near its ends, strips fitting said channels having grooves made longitudinally in their surfaces, wires seated in said grooves extending thence divergently along the sides 55 having intumed ends driven into the sides whereby the parts are locked together.

4. A box having unconnected sides, ends and tops said tops having channels across their upper surfaces, and bails fitted in said 60 grooves and having their opposite portions embracing the sides and edges of the tops and with the extremities of said portions driven through said sides and into said ends to secure the unconnected portions without 65 the use of nails and other independent fastenings.

5. A box or receptacle having opposite lids provided in their outer surface with transverse grooves or channels, and wire bails fitting said grooves or channels and having their 70 end portions extending diagonally and driven directly into the sides of the box.

6. A box or like receptacle including a top having a groove near each end; a cleat engaging said groove and having its upper surface 75 channeled; and a wire bail seated in said channeled surface and having its opposite portions embracing the sides of the box and edges of the top and driven into said sides. 80

In witness whereof I have hereunto set my hand.

EDWARD FLETCHER.

Witnesses:

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JESSIE C. BRODIE.