

(No Model.)

M. B. CHURCH.

PACKING BOX.

No. 259,492.

Patented June 13, 1882.

Fig. 1.

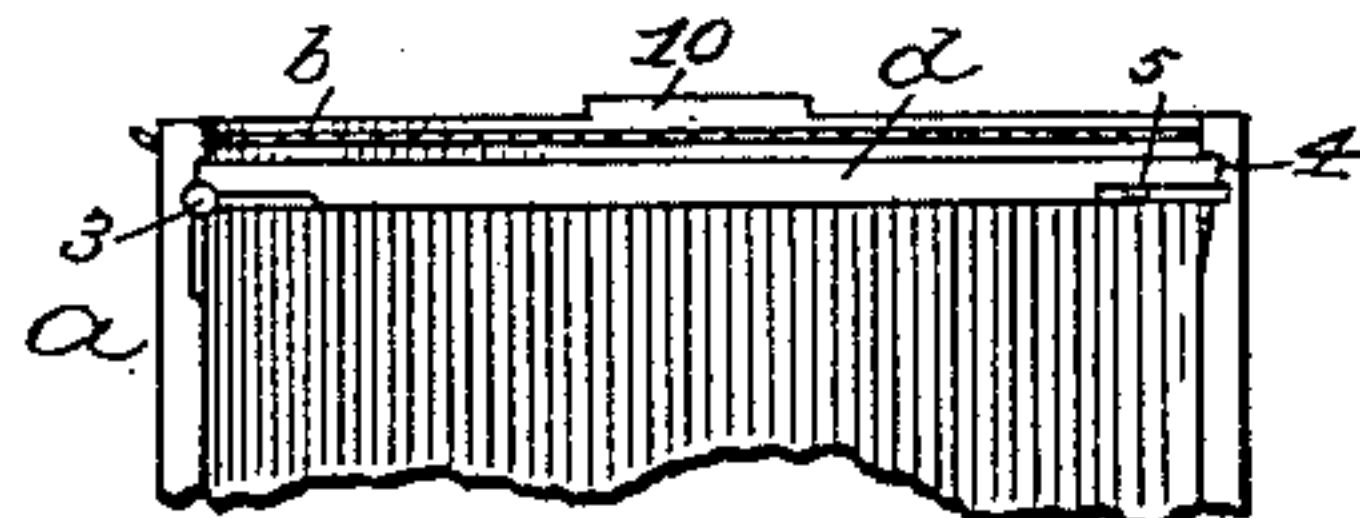


Fig. 2.

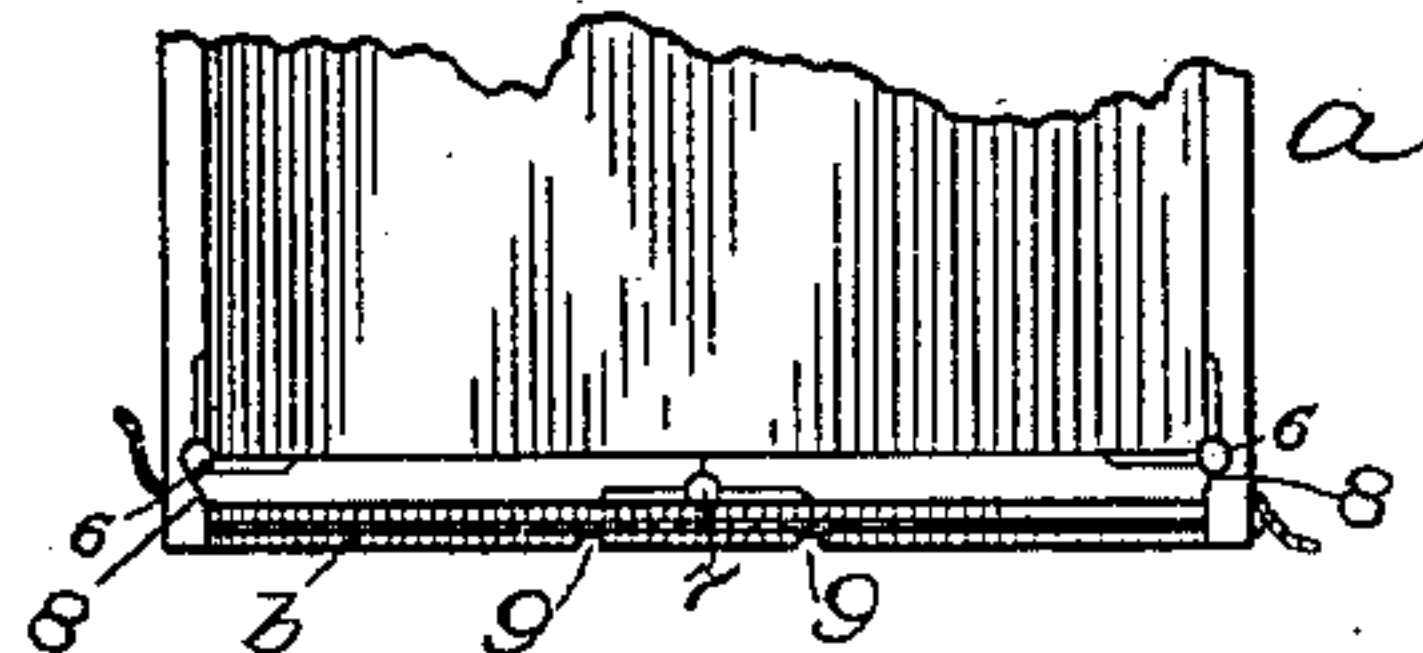


Fig. 3.

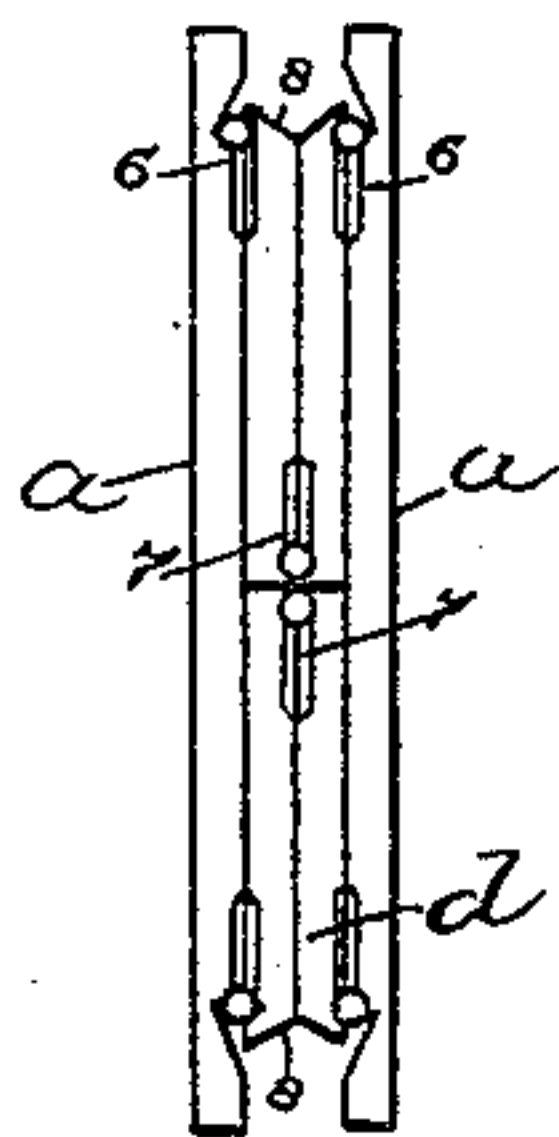


Fig. 4.

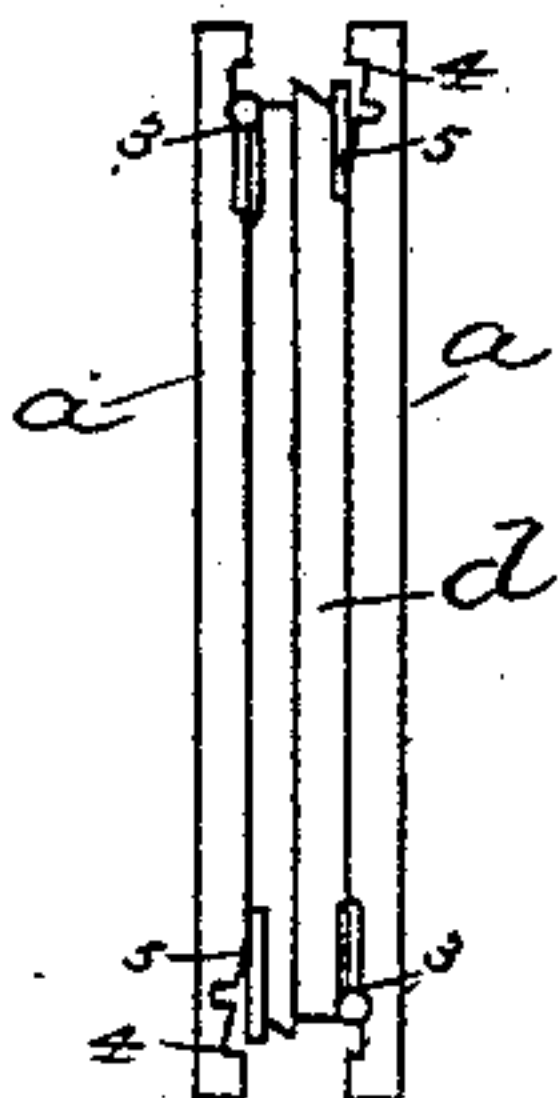
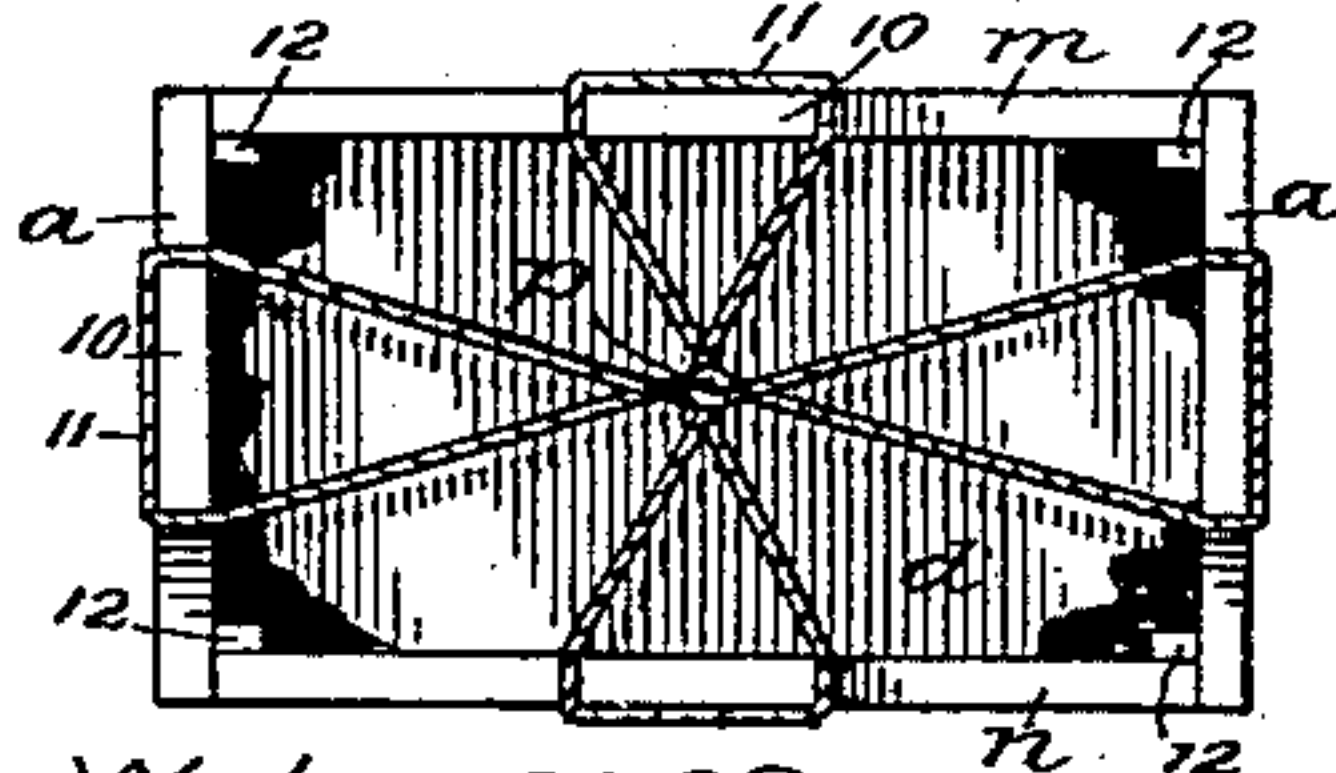


Fig. 10.



Witnesses

Walter Donaldson
J. L. Middleton

Fig. 9.



Fig. 5.

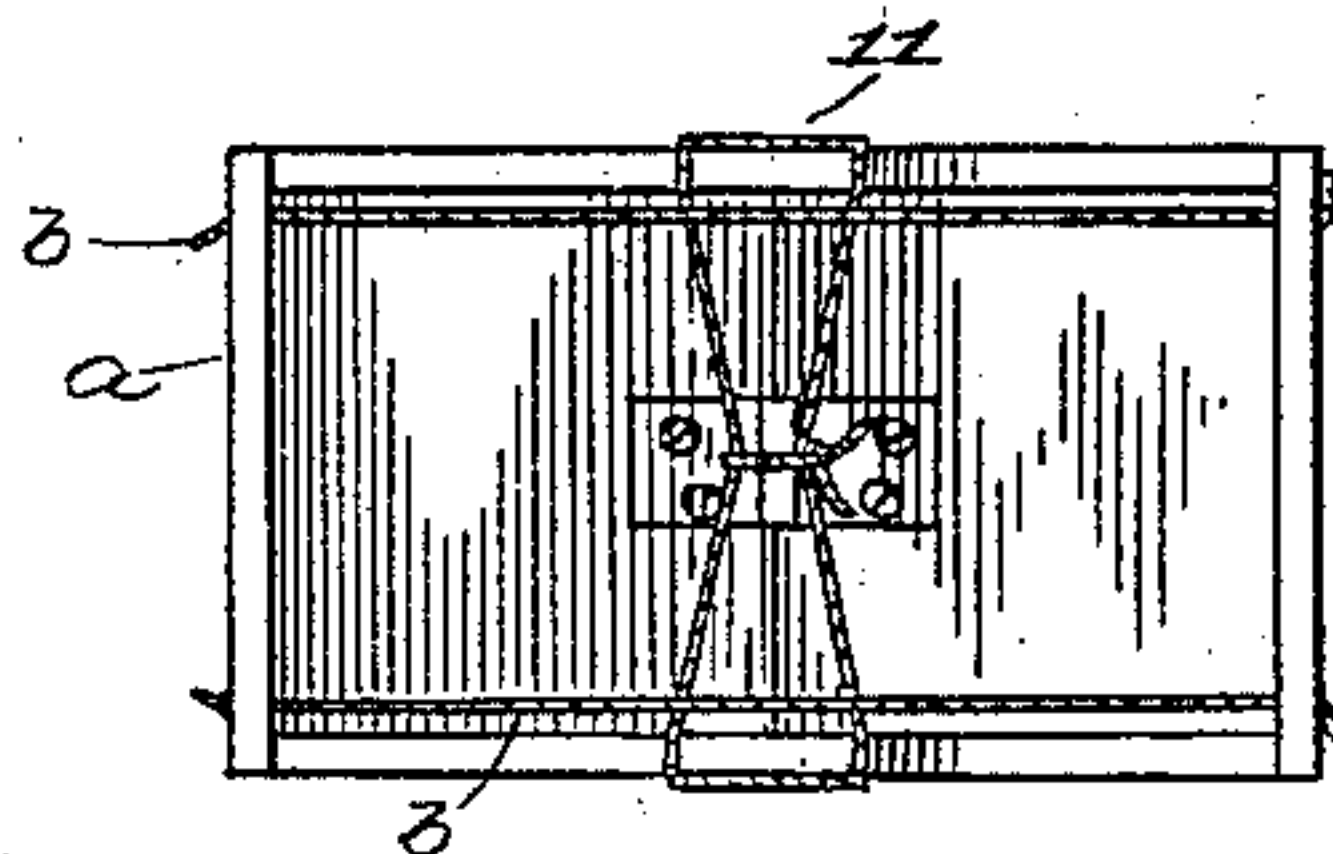


Fig. 6.

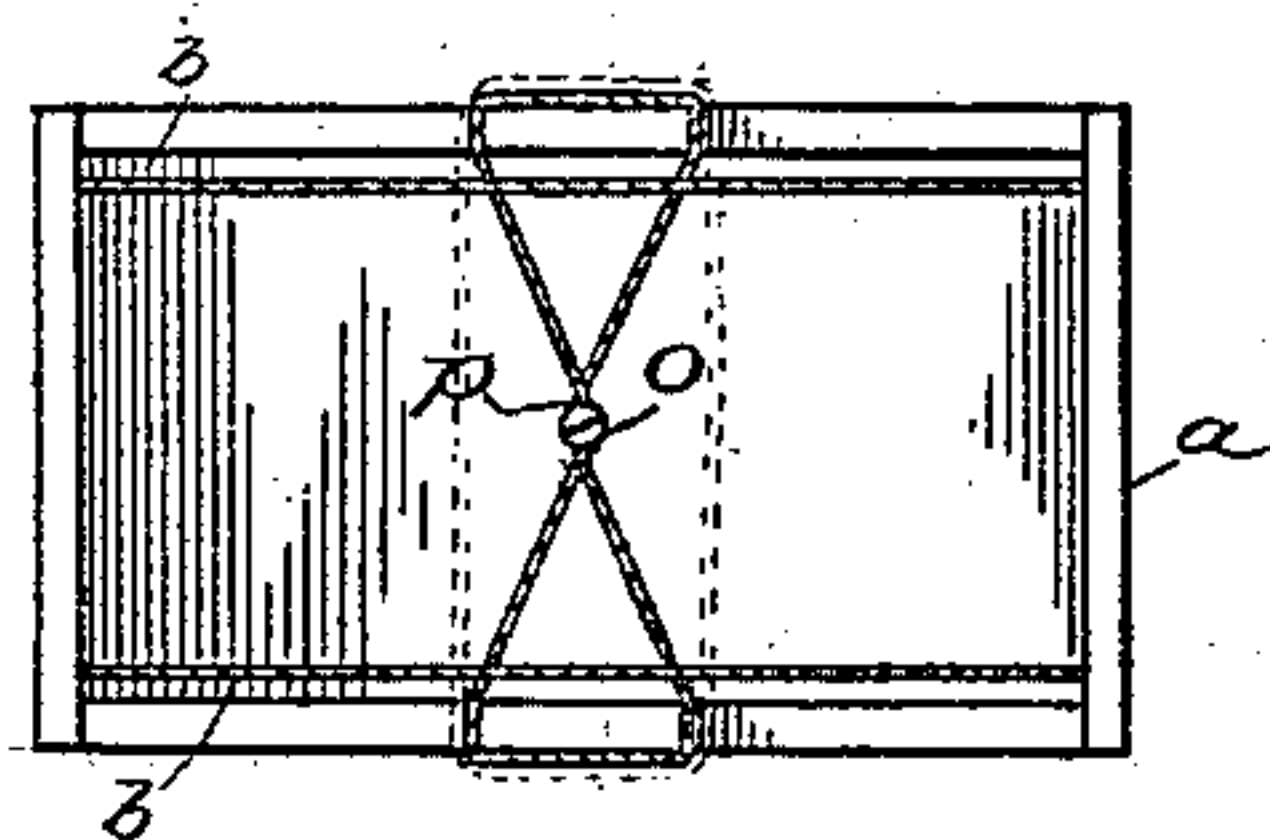


Fig. 7.

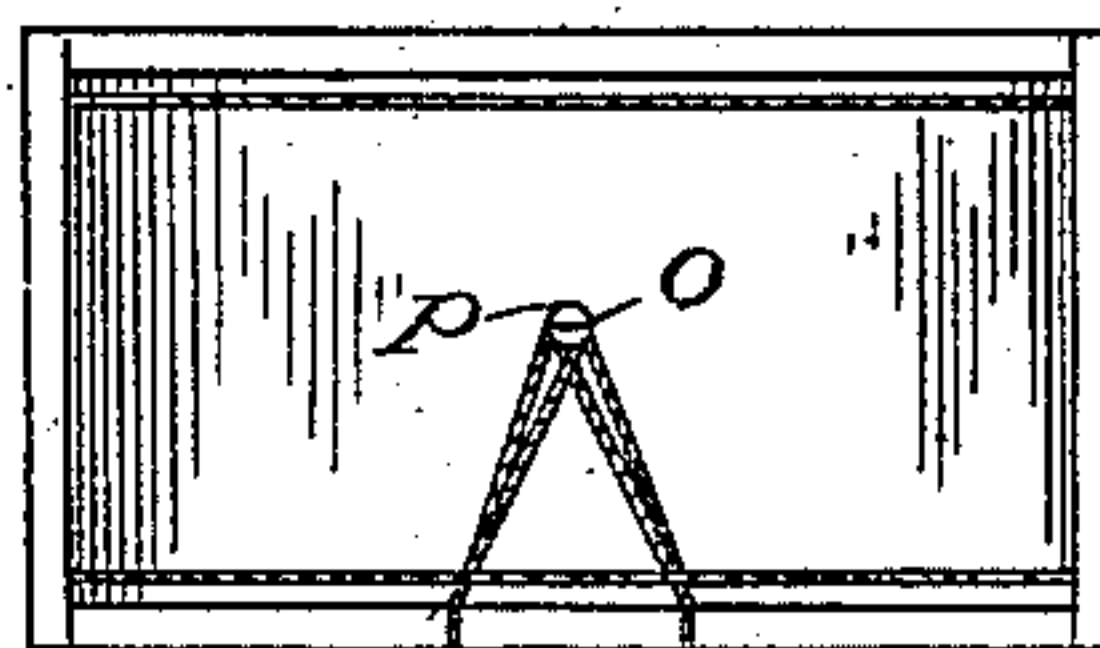
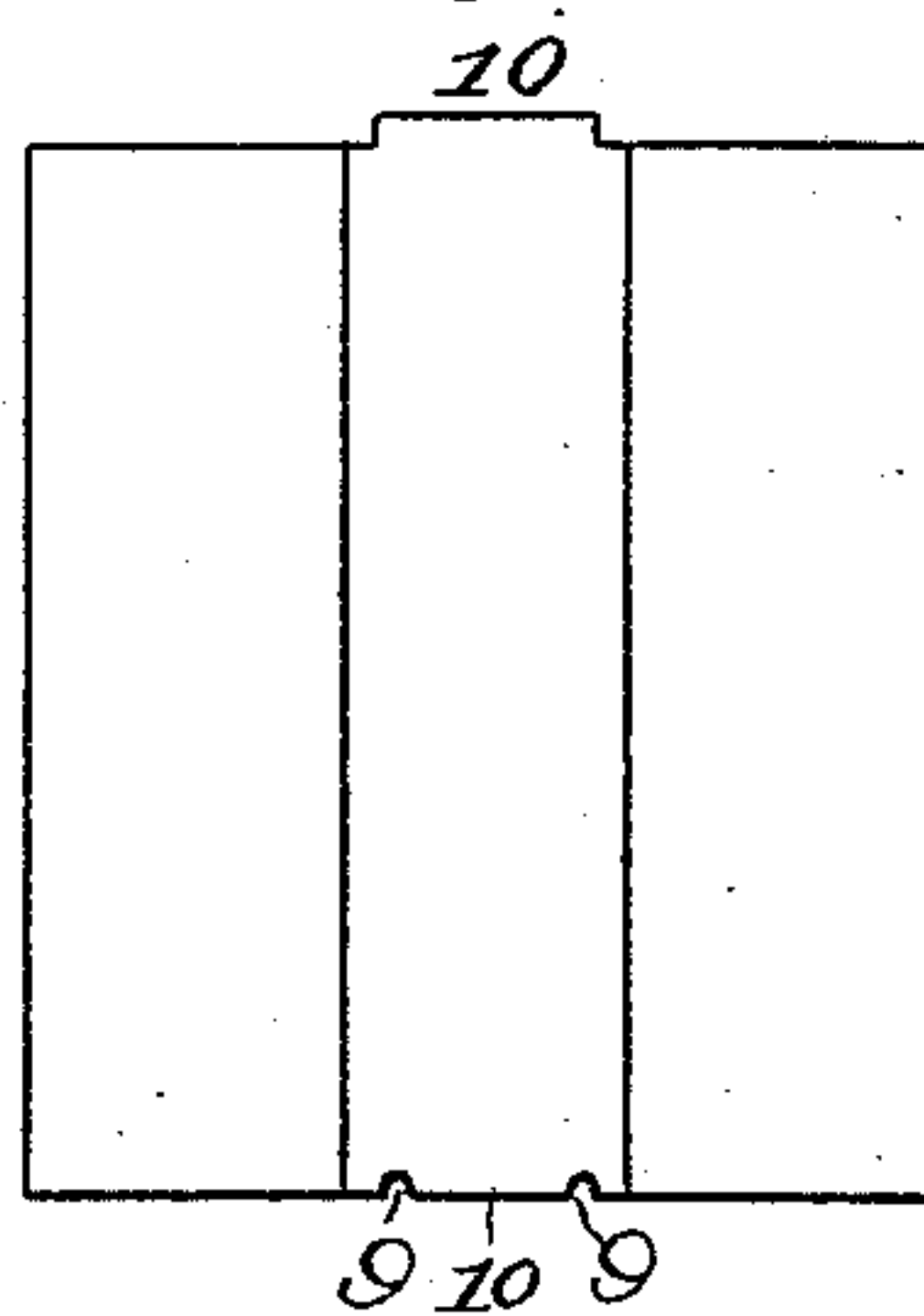


Fig. 8.



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UNITED STATES PATENT OFFICE.

MELVIN B. CHURCH, OF GRAND RAPIDS, MICHIGAN.

PACKING-BOX.

SPECIFICATION forming part of Letters Patent No. 259,492, dated June 13, 1882.

Application filed January 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, MELVIN B. CHURCH, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Packing-Boxes; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to packing-boxes of that class capable of collapsing or folding when empty for reduction of their bulk in transportation.

The main part of the invention consists in holding the body of the box together and in firm position by means of transverse cords or wire cable connected to the sides of the box outside of the end pieces, the said end pieces being fitted to or connected to the side pieces, so that when in place they shall put the cords under proper strain and cause all the parts to be held securely together. Details of construction for more effectually carrying out this principle constitute part of my invention.

In the accompanying drawings, Figure 1 shows a plan view of the box with one form of end piece; Fig. 2, a like view with a modified form of end piece. Fig. 3 shows the box represented in Fig. 1, but in a closed position. Fig. 4 represents Fig. 2 in a closed position. Figs. 5, 6, and 7 represent device for holding the top and bottom in position, and Fig. 8 represents the cover or bottom. Fig. 9 shows a clip detached, used for fastening the cable. Fig. 10 is a modification.

In these drawings, *a a* represent the sides, and *d d* the end pieces, of the box. The proportions may be varied at pleasure; but the parts pack more conveniently if the length and breadth are equal or double the height. The end pieces are connected to the sides by hinges. In Fig. 1 the ends are represented as in one piece hinged to the sides at 3 in one corner. The hinges are countersunk, so that the end piece may be swung to lie up against the side, as shown at Fig. 4.

Pieces of cord or wire cable which connect the sides are shown at *b b*. They are passed through holes in the ends of the side pieces outside the end pieces, and are held by knots or some equivalent fastening, so as to bind the side pieces firmly in place. They must be accurately adjusted in length, so that when

the end pieces are swung into place the cords will be put under proper tension. The free end of the end piece, *d*, fits into a small chamfer, 4, in the side piece, and is held in place by a latch, 5. In the equivalent form shown in Figs. 2 and 3 the ends are made in two parts, hinged together at 7, so that the two sides are connected to each other by hinged end pieces, and are folded in the manner shown in Fig. 3. In this form the end pieces, when folded, occupy the same space as those shown in Fig. 4. The hinges 7 are on the outside, and the ends of the end pieces which abut against the sides are formed beveling, as shown at 8, in order to hold the ends when extended.

As a convenient means of fastening the ends of the pieces of cord or cable *b*, I provide clips *c* in the form shown in Fig. 9. These may be cut out of thin metal, with holes 1 and 2 adapted to receive the end of the cord or cable. The cord is passed first through one hole, then back through the other, where it is bound by the pressure of the clip against the side of the box. When the box is collapsed these clips may be brought around and hooked together in order to bind the parts.

In Figs. 5 and 6 I have shown the ends of the boxes with device for holding the top and bottom in position. I form the top and bottom with projections 10, formed either by cutting away the ends entirely down to the projection, or by kerfs 9 9. Over these ends, which when the top and bottom are in place, are opposite each other, I place a loop of cord or cable, 11, and put it under strain by drawing the two sides together, as shown in the figures last named. They may be held either by a bit of cord, as shown in Fig. 5, or by catching the cord over a central pin, *p*. This is a very convenient way, and may be used where the solid ends are employed. This end loop, with the pin, is convenient also for holding the bottom in place while the box is filling. The loop which is used to hold the top and bottom together may be bent back over the stud and doubled upon the bottom piece in the manner shown in Fig. 7, and after the box is filled it may be brought up and arranged in the manner shown in Fig. 6. The same means shown in Figs. 5 and 6, which puts strain upon the cords which hold the top and bottom, may be

also used to strain the cords which hold the side pieces in place, and the cords may be formed in a loop and passed over projections on the sides similar to those shown at 11, Figs. 5 and 6 or the cords which hold the top and bottom may be passed through holes in the manner described when referring to the method of holding the side pieces.

By the employment of the fastening device last described the use of hinges may, by a slight modification, be entirely dispensed with. The construction by which this is accomplished is illustrated in Fig. 10, which represents an end view of the box. The side pieces, *a*, are provided on the inner sides with cleats 12—one at each end—of slightly less length than the length of such side pieces. The end pieces, *d*, when in place, rest upon the ends of the four cleats, so that the outer surface of such end pieces is not quite flush with the edge of the cover, though nearly so. The end pieces, *d*, have a central pin, *p*, while the side pieces, *a*, and the top and bottom *m n* have the projections or kerfs shown in Fig. 8. The cord or cable *b* is then looped over the four projections and twisted about the central pin, as shown, holding the top and bottom in place against the sides and the end pieces against the ends of the cleats. The parts can then be readily taken apart and packed.

When the height of the box is less than the width the top and bottom may be made in sections, as shown in Fig. 8, and as they are set in between the sides, as shown in Figs. 5, 6, and 7, they may be formed with tongues and grooves, so that the middle section, held by the cords, may secure the whole.

When the entire end pieces are used, as shown in Fig. 3, the top and bottom may be shoved in between the sides and the whole be bound together by the cords.

Having thus described my invention, what I claim is—

1. The combination of the sides pieces, *a a*, the end pieces divided into two equal parts and hinged at 6 and 7, and the cords or cables *b*, attached to the ends of the sides in the manner shown.

2. In a collapsible box, the combination of the top and bottom having the projections 10, the end pieces, the cord 11, connecting the top and bottom to such end pieces, and an intermediate device for straining the cord.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MELVIN B. CHURCH.

Witnesses:

L. W. SEELY,
F. L. MIDDLETON.