(Model.)

E. MARTER.

DOVETAIL JOINT.

No. 435,759. Patented Sept. 2, 1890.

Fig. 1.

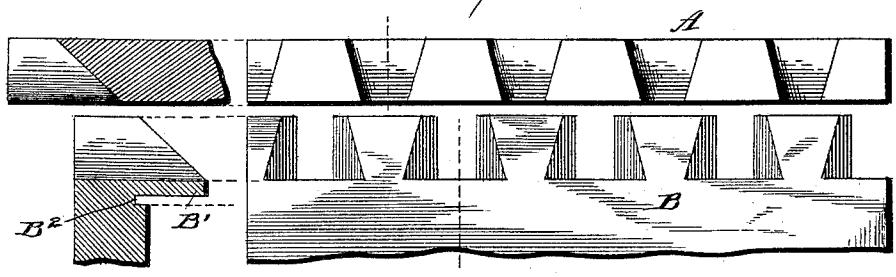


Fig. 2.

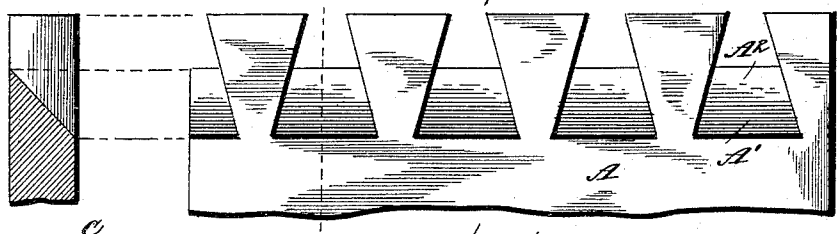


Fig. 3.

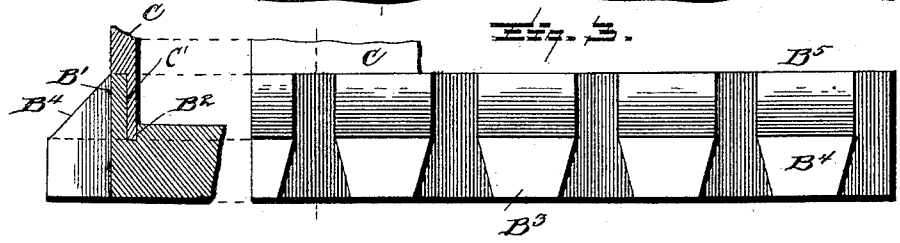


Fig. 4.

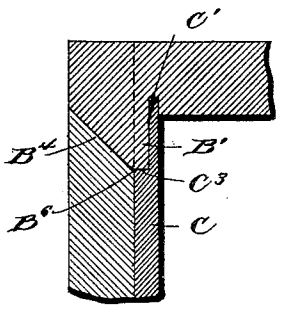
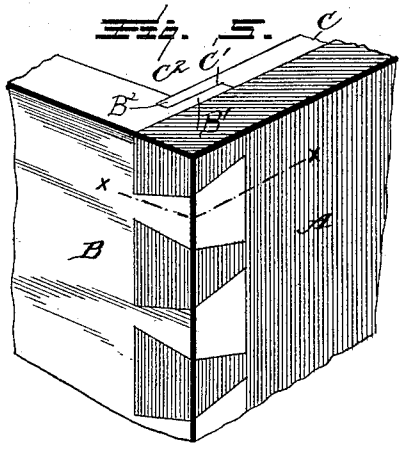


Fig. 5.



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UNITED STATES PATENT OFFICE.

EZRA MARTER, OF MISHAWAKA, INDIANA.

DOVETAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 435,759, dated September 2, 1890.

Application filed August 5, 1889. Serial No. 319,714. (Model.)

To all whom it may concern:

Be it known that I, EZRA MARTER, a citizen of the United States, residing at Mishawaka, in the county of St. Joseph, State of Indiana, have invented certain new and useful Improvements in Dovetail Joints, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to certain new and useful improvements in dovetail joints; and it has for its object to provide a simple form of joint which shall be self-locking, working to lock by movement from the inside outward, whereby any undue outward pressure upon the parts jointed will serve to more firmly bind them together. As an additional precaution against separation under any circumstances, I provide the interior locking-piece engaging opposite ends of the structure and serving to receive the pressure or strain.

The novelty resides in the peculiarities of construction and the combinations, arrangements, and adaptations of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a plan of two adjacent parts constructed to form my improved dovetail joint, the parts being disengaged, and sections thereof, said sections being taken upon the dotted lines shown in the plan. Fig. 2 is a side elevation of one of the parts with section on the dotted line thereof. Fig. 3 is an edge view of the male portion, having also a section thereof, the section being taken on the dotted lines of both views, illustrating a portion of the supplemental locking-piece. Fig. 4 is a section through the line $x\,x$ of Fig. 5. Fig. 5 is a perspective view of portions of two parts united by my improved joint with the supplemental locking-piece in place.

Like letters of reference refer to like parts throughout the several views.

Referring to the details of construction by letter, A designates what I term the "female portion," and B the "male portion," of the joint or lock. The female portion A is formed at opposite ends with the mortises A′, which are dovetailed in their exterior contour upon both sides of the piece and upon the end, as shown, the inner faces of the mortises being all inclined, the two opposite ones being undercut, as shown, the wall A^2 of the mortise being inclined at an angle of about forty-five degrees, so that the opening in the mortise upon the outer face of the female portion A is substantially one-half of the depth of that upon the inside.

The male portion B is formed with a right-angled projection B′, and formed with a groove B^2, as shown clearly in Figs. 1, 3, and 4. The tenons B^3 on this portion extend across the projection B′, as seen best in the section in Fig. 3, and are dovetailed to correspond to the dovetail mortises in the female portion, said mortises being formed with an inclined portion B^4, as seen in Figs. 3 and 4, said incline extending from the outer edge of the projection B′ to a point substantially midway between the said edge of the projection and the outer face of the portion B, leaving a dovetail portion B^5 of the same width as the opening on the outer face of the mortise in the female portion A.

In practice the tenons of the male portion are entered into the mortises of the female portion from the inside and the male portion forced outward lengthwise of the female portion, and as it is pressed home it has a movement in two directions—lengthwise of the female portion and also in a direction at right angles thereto—until the parts are forced home, making a flush joint upon both exterior faces of the parts, the inclined portion B^4 of the tenons of the male portion riding up the inclined face A^2 of the mortises of the female portion, serving to draw the parts into their proper position, and the greater the pressure upon the inside the more firmly will the parts be locked. The walls of the mortises, and also those of the tenons, being all formed upon an incline, constitute a wedge in all directions. A reverse movement of the parts upon each other is necessary to separate the parts A and B. In order to strengthen the structure and form also an additional lock for the joint, I employ the locking-piece C, which extends across from one side to the other and across the angle at the joint or union of the two parts A and B, and which

at its ends is halved out, as shown at C′, the lips C^2 thereof entering the grooves or channels B^2 of the male portions, the shoulder C^3 impinging against the edge B^6 of the projection B′, as shown in Figs. 3, 4, and 5. The projection B′ forms the complement of the locking-piece C, removed to form the halved-out portion, as will be clearly understood from Fig. 5. This forms a strengthening means for the portions of the structure and prevents the separation of the parts, it being absolutely necessary to remove this locking-piece before the parts A and B can be separated, as the unlocking of these parts can be accomplished only by a movement inward. The greater the movement outward the firmer the lock.

The parts constructed as above described are applicable to all uses in all places where it is desired to unite parts by a dovetail joint where there is any angular arrangement of the members whether in boxes, drawers, partitions or other constructions. The angular relation of the parts A and B is important, inasmuch as it serves to produce the locking effect by increased pressure on the parts.

Wherever in the description and claims I use the term "inside" I wish to be understood as meaning the face of the parts from which the male portion of the joint is entered. The parts united and locked in the manner above described are prevented from spreading by the weight or pressure exerted thereagainst from the inside—as, for instance, where the parts are employed in the construction of a box or other receptacle.

What I claim is—

1. The combination, with parts constructed to form a dovetail joint working to lock by movement from the inside out, of an unpivoted bodily-movable interior locking-piece extending across the angle at the joint and entered into one of the parts to prevent reverse movement of said parts, as set forth.

2. The combination, with one portion formed with dovetail mortises and the interlocking portions formed with tenons engaging said mortises and with channels B^2, of a locking-piece, as C, having portions engaging said channels, as set forth.

3. The combination, with the female and the male portion interlocking therewith and formed with extensions B′ and channels B^2, of the locking-piece formed with lip C′ and shoulder c^3, as set forth.

4. The combination, with the female portion having mortises, of the male portion having projection B′, and tenons extending across said projections, substantially as described.

5. The combination, with the female portion having mortises, of the male portion having projection B′, and tenons extending across said projection, said tenons being formed with inclined portion B^4, as set forth.

6. The combination, with the female portion formed with mortises having inclined wall A^2, of the male portion having projection B′, and dovetail tenons extending across the projection and formed upon the inner face with inclined portion B^4, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

EZRA MARTER.

Witnesses:
JACOB D. HENDERSON,
JOSEPH HENDERSON.