

(No Model.)

H. L. ANDREWS, D. SCHUSTEK & T. H. COSTELLO.
DOVETAIL JOINT.

No. 419,133.

Patented Jan. 7, 1890.

Fig. 1.

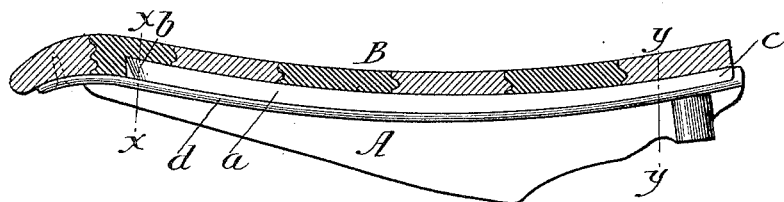


Fig. 2

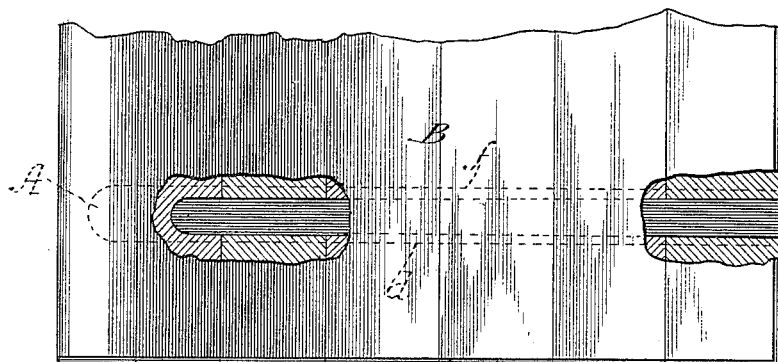


Fig. 3.

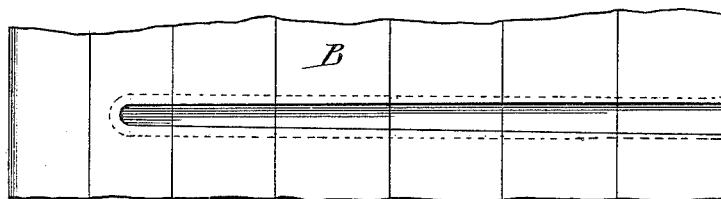


Fig. 4.

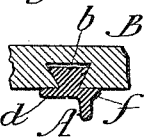
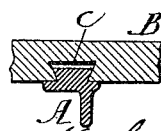


Fig. 5.



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HERBERT L. ANDREWS, DANIEL SCHUSTEK, AND THOMAS H. COSTELLO, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE A. H. ANDREWS AND COMPANY, OF SAME PLACE.

DOVETAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 419,133, dated January 7, 1890.

Application filed June 11, 1887. Serial No. 241,081. (No model.)

To all whom it may concern:

Be it known that we, HERBERT L. ANDREWS, DANIEL SCHUSTEK, and THOMAS H. COSTELLO, residing at Chicago, in the county of Cook and State of Illinois, and citizens of the United States, have invented a new and useful Improvement in Dovetail Joints, of which the following is a specification, reference being had to the accompanying drawings, in which—
Figure 1 is a side elevation showing a school-seat arm with the wood thereon in section. Fig. 2 is a top view of a seat, some parts being cut away to show the top of the tenon of the dovetail joint. Fig. 3 is a plan of the mortise in the wood. Fig. 4 is a section at line *x* of Fig. 1. Fig. 5 is a section at line *y* of Fig. 1.

Our invention is primarily designed to be used for uniting the wood and metal portions of school and other seats and desks, but may be used for other purposes. It is common to provide iron standards with dovetail tenons to enter dovetail mortises in the wood parts which form the seat, the back, and the top of school seats and desks. Heretofore such tenons and mortises have usually been made of uniform size from end to end, and as the tenon and mortise must fit each other it requires considerable force to drive the wood parts onto the tenon, which wood parts are usually made of a number of strips glued together, thus forming, practically, a single piece of considerable width.

Wedge-keys have been used in connection with a tenon having a tapering dovetail form on one side. Tapering dovetail joints of various forms are also old; but such we do not claim, broadly.

The object of our invention is to so form the dovetail tenon and mortise that a comparatively wide board provided with suitable mortises can be applied to a long tenon easily, and so that the parts will be held firmly together when in place without any additional fastenings, which we accomplish by making the mortise deeper at one end than at the other, and by making the throat of the mortise wider at one end than at the other, and by making the tenon of corresponding form, but of such size that the tenon fits loosely in

the mortise until the two parts have been brought nearly to their final position, when they will fit tightly together, as illustrated in the drawings, and hereinafter described.

That which we claim as new will be set forth in the claim.

In the drawings, A represents a school-seat arm provided on its upper side with a dovetail tenon *a* cast with the remaining portion of the arm. This tenon is considerably higher at one end *b* than at the other end *c*, as shown in Figs. 1, 4, and 5.

d f are flanges on the arm A.

The upper surface of the tenon tapers gradually and uniformly on a curved line from one end to the other. The sides of the tenon taper gradually from the top to the bottom, as usual, and also from one end to the other, so that the bottom of the tenon is much narrower at one end than at the other, as shown in Figs. 4 and 5. The mortise in the wood B, which is to be applied to the described tenon, corresponds in form to the tenon—that is to say, the mortise is deeper at one end than at the other. The throat of the mortise is narrower at one end than at the other, and the two inclined sides of the mortise taper from one end to the other, all as shown in the drawings.

In applying the wood to the iron the shallow end of the mortise is applied to the deep end of the tenon, and the wood can be slipped onto the tenon nearly the whole length thereof easily and without any binding; but when forced to place the sides of the mortise will fit the sides of the tenon from end to end as closely as when the tenon and mortise are made in the usual way. At the same time the flanges *d f* will come in close contact with the wood on each side of the throat of the mortise, and this will aid in holding the two parts securely together. The flanges will not come in contact with the wood until it has been brought nearly to its final position. By using this form of tenon and mortise the application of wood to metal is greatly facilitated, requiring but very little force to drive the wood upon the metal.

The tenons are cast upon the metal parts, the patterns being of the proper form.

The mortises in the wood parts can be made rapidly by means of a cutting-tool, such as is now used for cutting mortises of uniform depth and size from end to end, it only
5 being necessary to arrange a form on which the end of the frame which carries the tool can travel, so that the depth of the cutting will gradually increase from one end to the other of the mortise. Thus the described
10 mortise of the proper form can be cut in a curved piece of wood as well as in a straight piece.

A wide board provided with a mortise having the described form can be easily fitted
15 upon a long tenon having a corresponding form, as described, because the two parts do not bind one upon the other, but fit loosely together until they have been nearly brought to place; but when together in the proper po-
20 sition the tenon fits tightly in the mortise from end to end.

As shown in the drawings, the mortise in the wood is cut a little deeper than the depth of the tenon, and therefore the mortise will

fit loosely on the tenon until the two parts 25 have been brought nearly to final position.

What we claim as new, and desire to secure by Letters Patent, is—

The herein-described dovetail joint, consisting of a long tenon which is deeper at one 30 end than at the other, its upper surface being gradually deepened uniformly on a curved line from end to end, and its sides tapered gradually inward from top to bottom, and also tapered uniformly from end to end in such a 35 manner that the bottom of the tenon is narrow at its deepened end and broad at its shallow end, and a long mortise having a form corresponding to said tenon and adapted to fit thereon loosely until the said parts are 40 brought firmly together throughout their length, substantially as described.

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