

C. K. WILCOX.
Wagon-Spoke Tenons.

No. 218,207.

Patented Aug. 5, 1879.

Fig. 1.

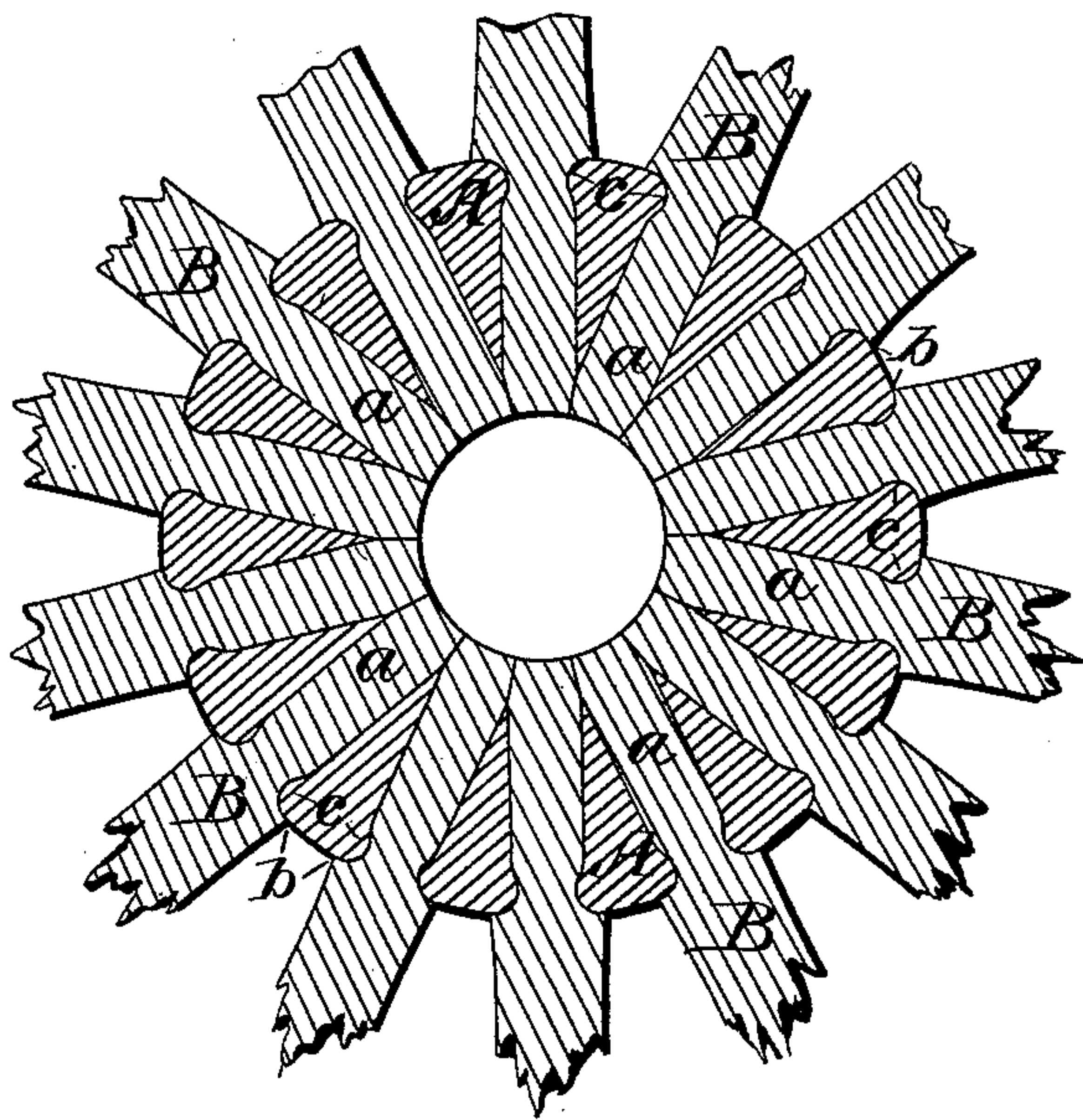


Fig. 2.

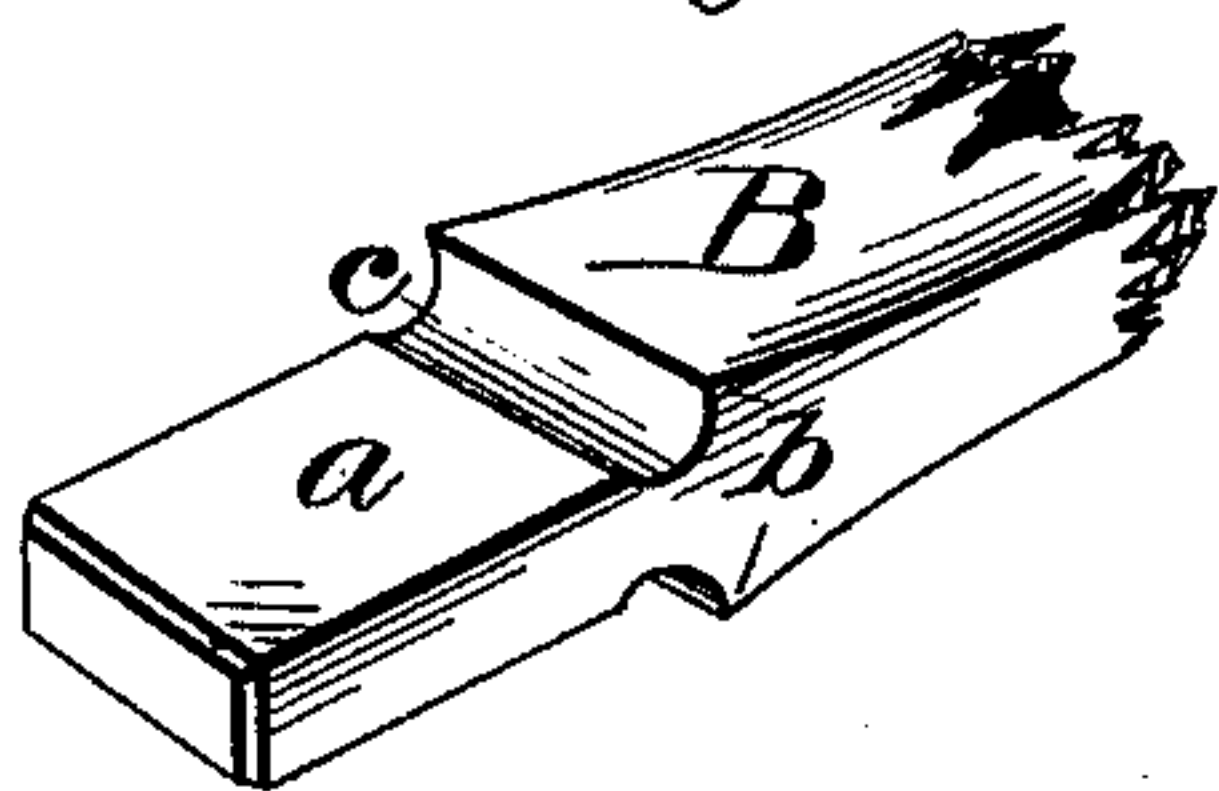
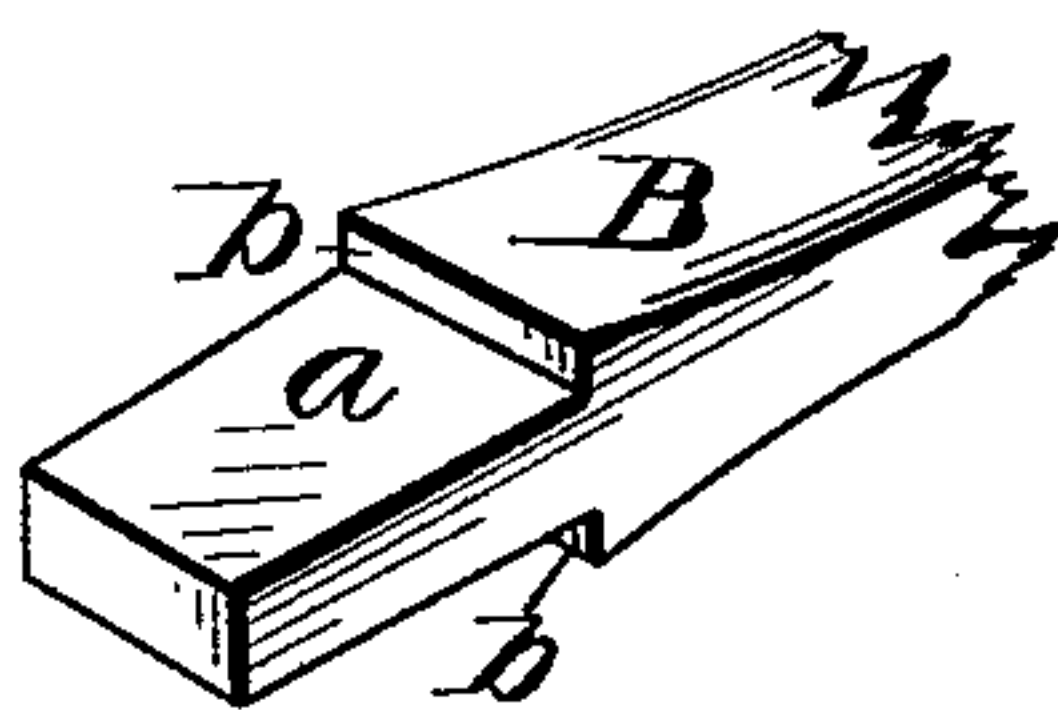


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES K. WILCOX, OF LIMA, OHIO.

IMPROVEMENT IN WAGON-SPOKE TENONS.

Specification forming part of Letters Patent No. **218,207**, dated August 5, 1879; application filed December 17, 1877.

To all whom it may concern:

Be it known that I, CHARLES K. WILCOX, of Lima, in the county of Allen and State of Ohio, have invented certain Improvements in Wagon-Spokes, &c., of which the following is a specification.

The object of my invention is to condense and harden the tenons of spokes and other wooden articles without rupturing or weakening the fiber at the shoulder or junction of the tenon with the body; and to this end it consists in making the tenon primarily of enlarged size, then cutting it down at the shoulder to the finished size, and finally compressing or condensing its body to the size required for use.

In this way I am enabled to compress and condense the tenon to any required degree of hardness without weakening it at the shoulder, as would be the case were it not cut away previous to the compression in the manner described.

In carrying out my invention the tenon is made larger in cross-section than the mortise in which it is to be inserted, and then by means of a suitable press or a tapering die the tenon is compressed and reduced to the proper size to fit the mortise closely. By the compression the wood is condensed and hardened, and reduced to a size below which it will not shrink under any circumstances. The tenon thus reduced will remain of the same, or substantially the same, size at which it leaves the press or die, and the spokes may be stored, shipped, and used in the ordinary manner.

In order that the compression of the tenon may not break or weaken the fiber of the wood at the shoulder where the tenon joins the spoke, I cut a rounding groove across each face of the tenon, close to the body of the spoke, leaving the portion of the tenon between the grooves of about the thickness it will have when compressed.

It is preferred in compressing the tenon to reduce it edgewise and give it a bevel or taper downward on the back edge.

Figure 1 represents a cross-section of a wheel-hub and spokes embodying my invention; Fig. 2, a view of a spoke as it appears before being compressed; Fig. 3, a view of the same after being compressed.

A represents the hub, which may be made

of wood or metal, mortised, as usual, or in any suitable manner, to receive the tenons.

B represents the spokes, having their ends reduced, as usual, to form tenons *a* thereon, with shoulders *b* at the upper ends of the tenons, although the shoulders may be omitted and the tenons changed in form when necessary or desirable.

As shown in Fig. 2, the tenons are first formed of large size while the wood is in its natural condition, and then by means of a die or press the large tenon is compressed and reduced without removing any part of the wood therefrom to the smaller size and form required for use, as represented in Fig. 3.

In Fig. 2, *c* indicates the transverse grooves, which are formed in the faces of the tenon prior to the compression, to prevent said compression from breaking the fiber at the upper end of the tenon.

The manner in which the tenons expand after being driven is clearly represented in Fig. 1, in which it will be seen that the tenons are narrowest at the outer end, where the grooves were formed therein, the result of which peculiarity is, that the tenons and hub interlock in such manner as to effectually prevent the tenons from working outward.

It is obvious that my improvement may be applied to a great variety of objects and articles, such as the tenons on posts and rails of wagon bodies and seats, the stiles and rails of doors and windows and articles of furniture, and generally to wooden tenons wherever used.

I am aware that tenons have been heretofore compressed, and hence I do not claim such operation, broadly.

Having thus described my invention, what I claim is—

1. The improved method of forming spoke and other tenons, consisting in constructing the tenon of enlarged size, grooving or reducing the same at the inner end, and finally reducing the body of the tenon by compression to the required size.

2. The wooden spoke-blank having the tenon *a* and groove *c*, as shown.

CHARLES K. WILCOX.

Witnesses:

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