W. F. MORTON.

TENON AND MORTISE JOINT.

No. 189,770. Patented April 17, 1877.

Fig. 1.

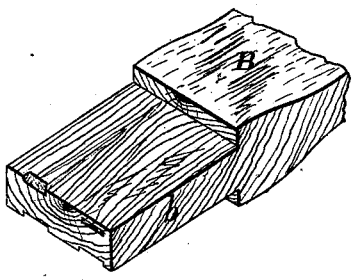


Fig. 2.

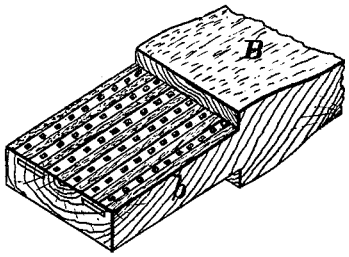
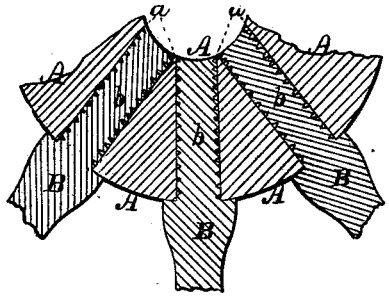


Fig. 3.



WITNESSES=

Jas. E. Hutchinson.

Henry L. Hazard

INVENTOR.

Wm. F. Morton, by

Prindle & Co his Attys

UNITED STATES PATENT OFFICE.

WILLIAM F. MORTON, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN TENON-AND-MORTISE JOINTS.

Specification forming part of Letters Patent No. **189,770**, dated April 17, 1877; application filed March 8, 1877.

To all whom it may concern:

Be it known that I, WM. F. MORTON, of New Haven, in the county of New Haven and in the State of Connecticut, have invented certain new and useful Improvements in the Method of Constructing Tenon-and-Mortise Joints; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is perspective view of the inner tenoned end of a spoke prepared in the usual manner for insertion within a hub. Fig. 2 is a like view of a spoke-tenon prepared in accordance with my method, and Fig. 3 is a cross-section of a wheel-hub, showing said spokes in place within the same.

Letters of like name and kind refer to like parts in each of the figures.

My invention is applicable to the formation of tenon-and-mortise joints generally, but it will be sufficiently illustrated by a description of its application in the construction of carriage-wheels.

In the construction of carriage-wheels it is customary to make the tenons of the spokes somewhat larger than the mortise within the hubs, so that when driven therein each tenon shall closely fill its mortise, but before inserting said tenons they are dipped in glue for the purpose of fastening them within the hub.

Experience has shown, however, that in consequence of the fit of the tenon within its mortise, the glue upon its sides is scraped off so perfectly as to prevent any from being carried into the mortise, in consequence of which no advantage is obtained from its use, and much less strength is secured for the joint between the spoke and hub than would be the case were said glue thoroughly spread over the contiguous surfaces, while the natural shrinkage of the tenon would soon cause it to fit loosely within the mortise.

Efforts have been made to secure a closer fit of the tenon by compressing the same before driving, but as the glue was as readily scraped off during the operation of driving as when applied to ordinary tenons, but little additional strength was secured, while in order to prevent such removal of the glue, the ordinary tenon has been grooved transversely or diagonally, the result being, however, a failure, as but a portion of the surface of said tenon could come into contact with the sides of its mortise.

To remedy these defects is the design of my invention, which consists, as an improvement in the method of forming tenon-and-mortise joints, in compressing the tenon and forming upon its surface indentations for the reception of glue, substantially as hereinafter specified.

In the annexed drawing, A represents a wheel-hub provided with radial mortises *a* for the reception of spokes B.

Each spoke B is provided at its inner end with a tenon, *b*, that corresponds in shape to the mortises *a*, but is made considerably thicker than the width of the latter, so that when driven to place said tenons shall closely fill said mortises.

After the tenons are completed I place each between two roughened metal surfaces, and by pressure applied compress said tenon until it can be easily pushed into its mortise, and by such operation cause the sides of said tenon to correspond to the surfaces of the compression-plates, said sides being covered with indentations.

The tenon is now dipped into glue and inserted within its mortise, but in consequence of the indentations in the surface of said tenon said glue is not scraped off, but is carried into said mortise, and operates to firmly unite the contiguous surfaces.

The moisture of the glue causes the compressed tenon to swell to its original thickness, and thereby to fill its mortise more closely than would have been possible had said tenon been driven without compression.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

An improved method of forming tenon-and-mortise joints, by compressing the tenon so as to form indentations upon its surface before insertion within its mortise, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of March, 1877.

WILLIAM F. MORTON.

Witnesses:

WALTER K. HAMLIN,

EDWIN C. DOW.