

(No Model.)

W. F. MORTON.

SPOKE TENON.

No. 397,995.

Patented Feb. 19, 1889.

Fig. 1

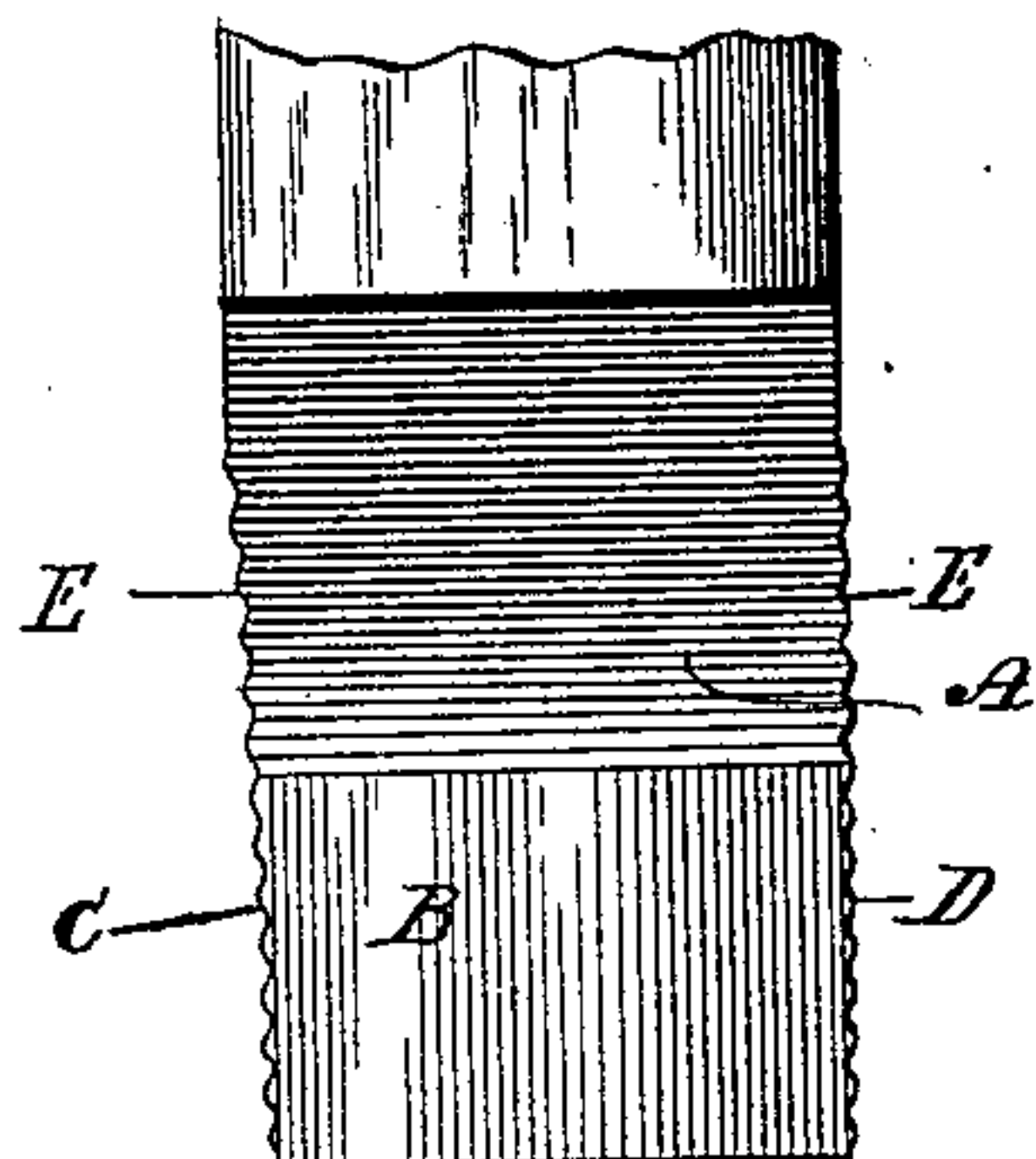


Fig. 2

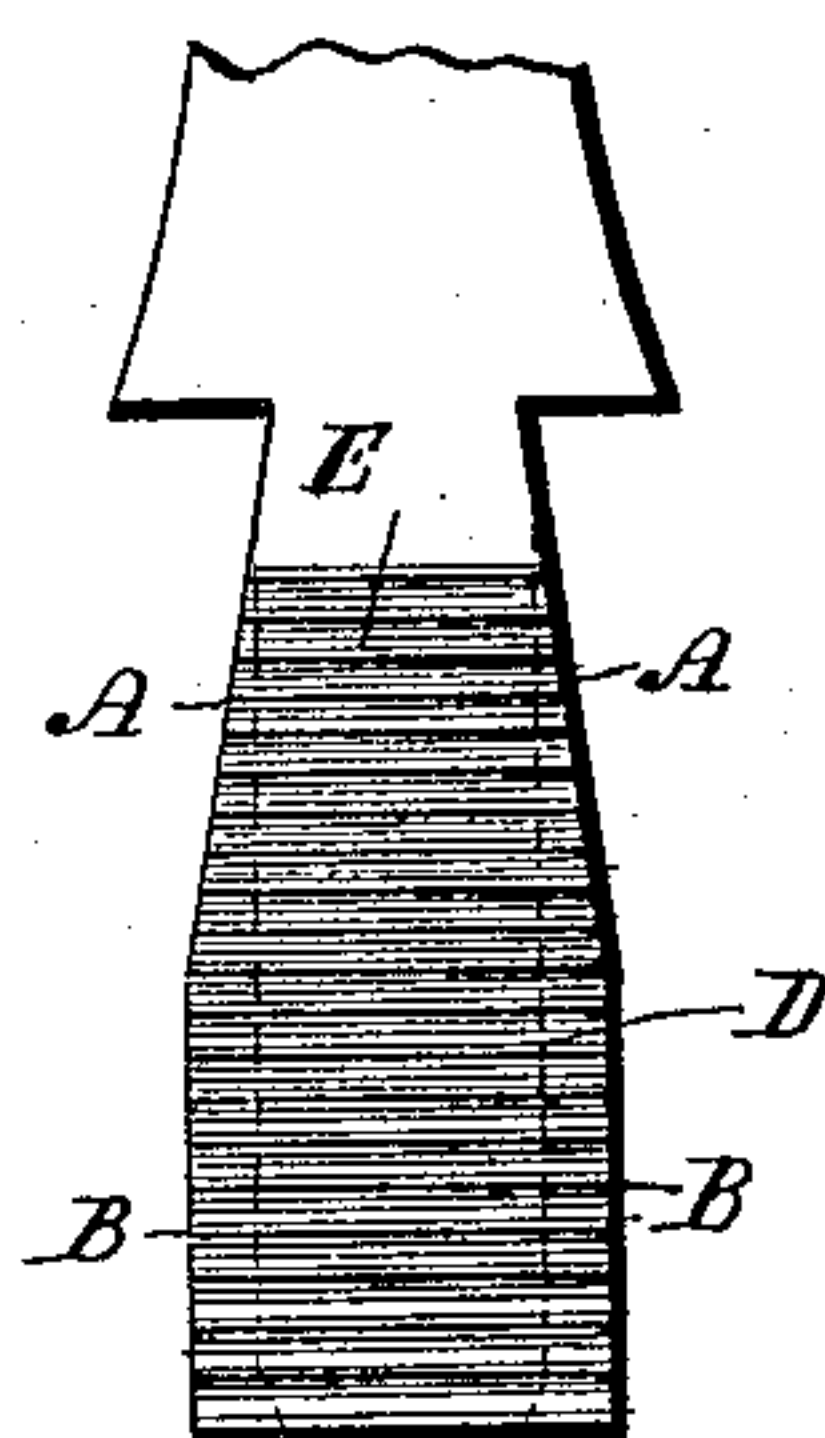


Fig. 3

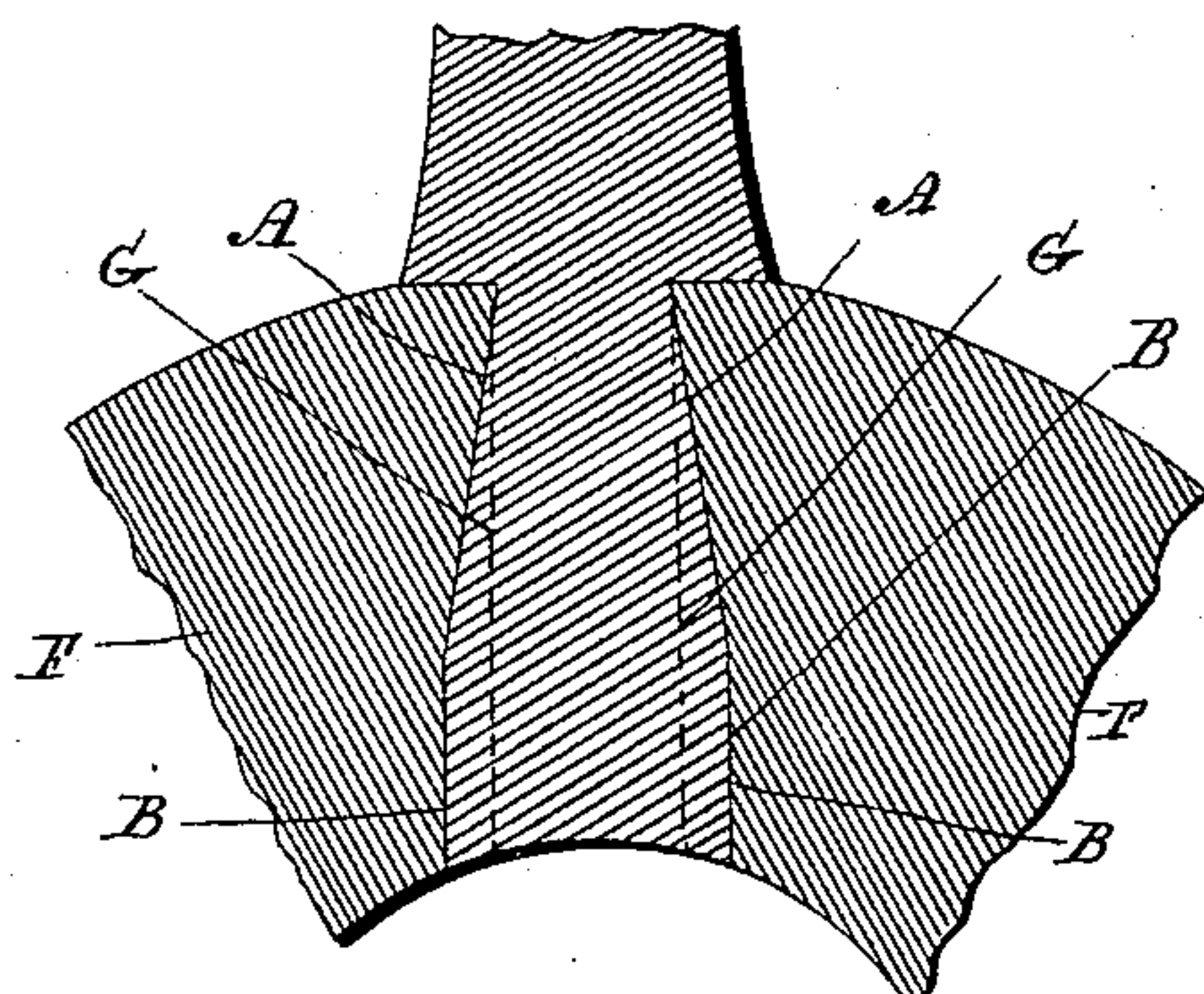
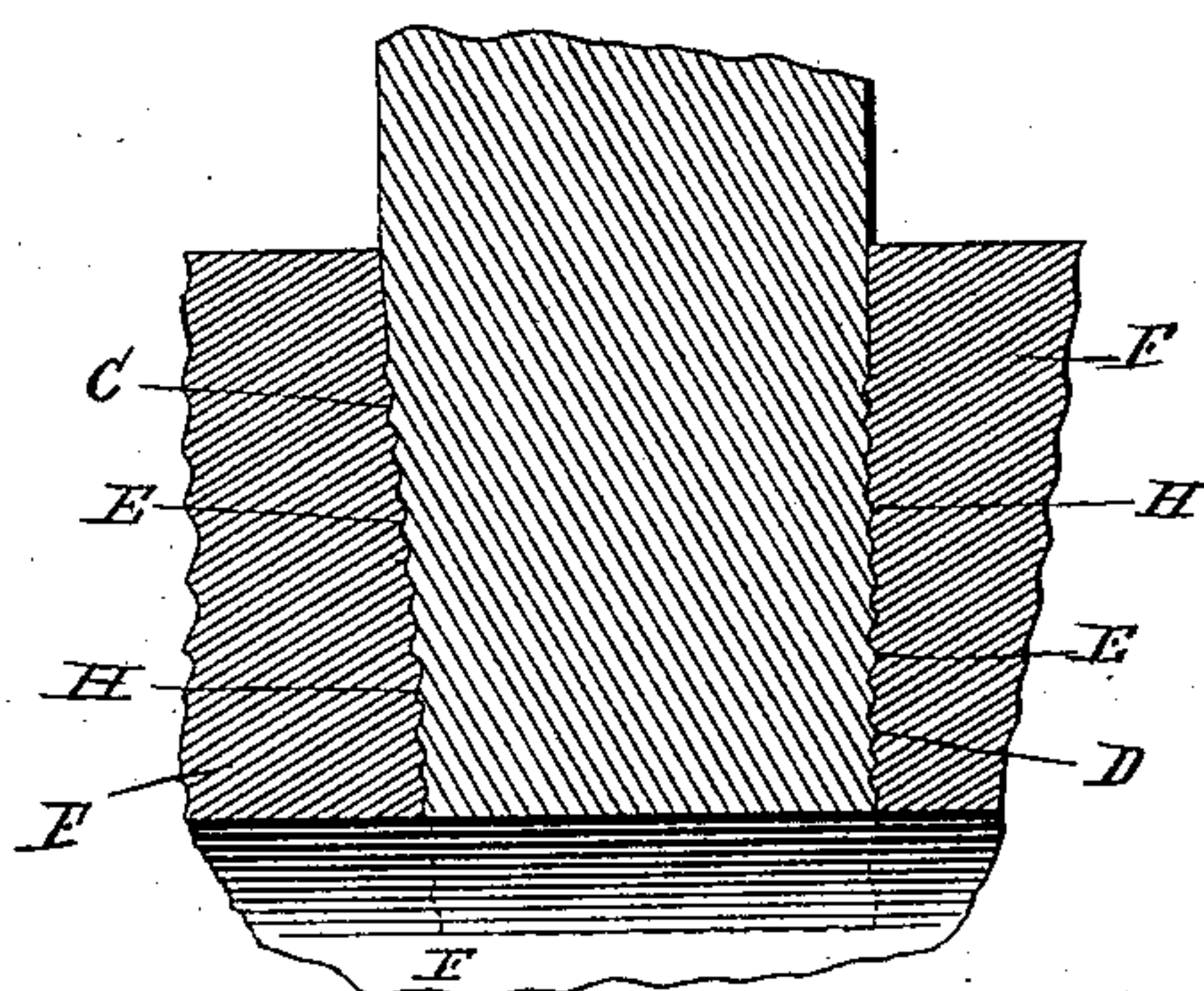


Fig. 4



Witnesses:  
Chas B. Shumway  
Edward H. Rogers.

Inventor,  
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By George D. Seymour  
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# UNITED STATES PATENT OFFICE.

WILLIAM F. MORTON, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO HOLCOMB BROTHERS & CO., OF SAME PLACE.

## SPOKE-TENON.

SPECIFICATION forming part of Letters Patent No. 397,995, dated February 19, 1889.

Application filed April 4, 1888. Serial No. 269,577. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. MORTON, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Mortise-and-Tenon Joints; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in compressed tenons, the object being to increase the amount of wood left in the tenon after boring out the hub and to interlock one or both edges of the tenon into the walls of the mortise.

With these ends in view my invention consists in a compressed tenon having its sides beveled from its neck to a point about midway between its ends and made straight below such point, and having one edge straight and one beveled and one edge or both corrugated.

In the accompanying drawings, Figure 1 is a broken view, in side elevation, of a spoke having a tenon embodying my invention. Fig. 2 is a broken view in elevation showing the edge of the spoke and the back of the tenon, the broken lines indicating the compression and pointing of the tenon for driving. Fig. 3 is a broken sectional view showing the tenon in its mortise with its lower end cut away, the walls of the mortise as it is originally formed being indicated by broken lines; and Fig. 4 is a similar view showing the tenon in side elevation and the interlocking of its corrugated face and back with the adjacent end walls of the mortise.

The sides of my improved tenon are beveled, as at A A, from its neck to a point about midway between its ends, and as herein shown, and preferably located between its center and outer end. From this point the sides of the tenon are made straight and are parallel, as at B B, to its outer end. The tenon is therefore straight-sided and of uniform bulk below the point where the bevel terminates. The tapered back C of the tenon and its face D are corrugated, as at E E, up to a point near its neck in the operation of compressing the tenon from the blank, which is simulta-

neously subjected to sidewise and edgewise pressure respectively applied in diametrically-opposite directions, such corrugation forming a series of raised retaining-points.

The hub F, of which only a portion is shown, is provided with a mortise having, before the tenon is driven, straight side walls, G G, and end walls, H H, the forward end wall being straight and the rear end wall being inclined.

The tenon and mortise are respectively made so that in driving the tenon it is resisted by the end walls of the mortise, whereby considerable force must be employed to drive it home. This operates to embed the corrugations of the compressed and therefore hardened tenon into the end walls of the mortise in which the corrugations are reproduced. The corrugations of the tenon and the corresponding corrugations of the end walls of the mortise, produced as described, form, as it were, interlocking points for holding the tenon in place. The grip so obtained is re-enforced by the edgewise expansion of the tenon, owing to its compression, and the joint made is of great strength and very durable. Preferably both edges of the tenon are corrugated; but, if desired, the corrugations may be confined to one edge of the tenon. The joint is also re-enforced by the sidewise expansion of the tenon, whereby its sides are forced into the straight side walls of the mortise, which they crowd outward to conform to their contour, as shown by Fig. 3 of the drawings. Before driving the tenon its outer end is pointed in the usual manner, and after it is driven the hub is bored out or boxed, as shown by Figs. 3 and 4 of the drawings, the end of the tenon being removed below the line where the straight and beveled portions of its sides merge into each other, whereby the tenon retains more of its bulk, and hence makes a stronger joint than a tenon having its sides beveled from its neck to its outer end, because the bulk of the tenon is increased by making the outer portions of its sides parallel.

By simultaneously subjecting the tenon-blank to sidewise and edgewise pressure respectively applied in diametrically-opposite directions, it is condensed without any injury to its fibers, and the resultant tenon retains



the full strength of the wood, besides being denser and stronger than an uncompressed tenon.

I am aware that it is not new to enlarge a tenon sidewise at a point about between its ends to aid in locking it in place. I do not, therefore, broadly claim such a construction, but only my specific way of enlarging the tenon sidewise.

I am aware that the corrugation of tenons to increase their capacity for retaining glue is not new. I do not, therefore, broadly claim herein the corrugation of a tenon, but only the corrugation of its edges for utilizing the edgewise pressure developed in driving it to embed the corrugations in the end walls of the mortise.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A compressed spoke-tenon made to gradually increase in thickness from the shoulders of the spoke to a point about midway of its length, and made straight from that point to its outer end, whereby a bulky parallel-

sided retaining end remains after the outer end of the tenon has been cut away in boxing the hub, substantially as set forth.

2. The combination, with a mortised hub in which one of the end walls of each mortise is inclined inward, of a compressed spoke-tenon having a straight edge and a beveled edge, one or both edges of the tenon being corrugated for forming retaining-points which are forced into the hub, when the tenon is driven, by the leverage secured by the beveled edge of the tenon and the inclined wall of the mortise, and form corresponding retaining-points therein, the retaining-points of the tenon interlocking under its edgewise expansion with those of the hub and forming a long series of interlocking points holding the tenon in place, substantially as set forth.

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

WILLIAM F. MORTON.

Witnesses:

CHAS. B. SHUMWAY,  
H. HALL.