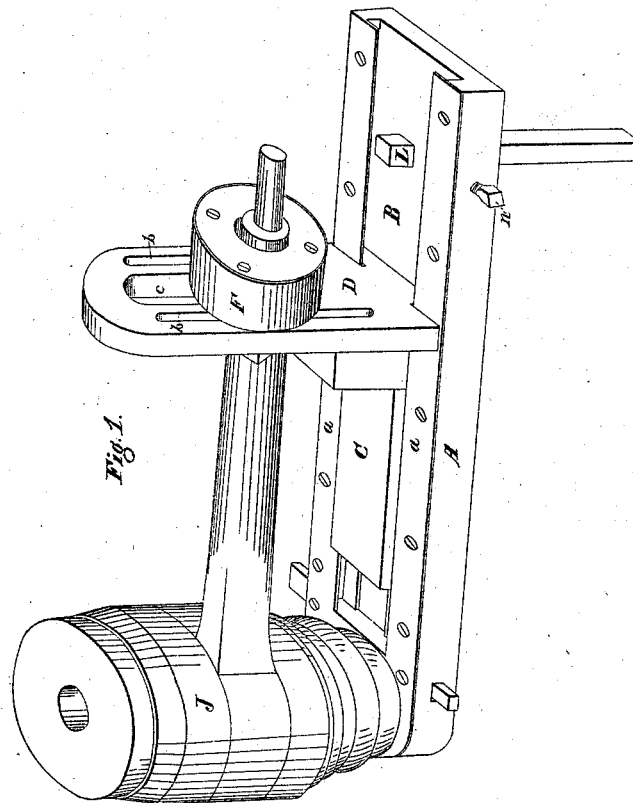
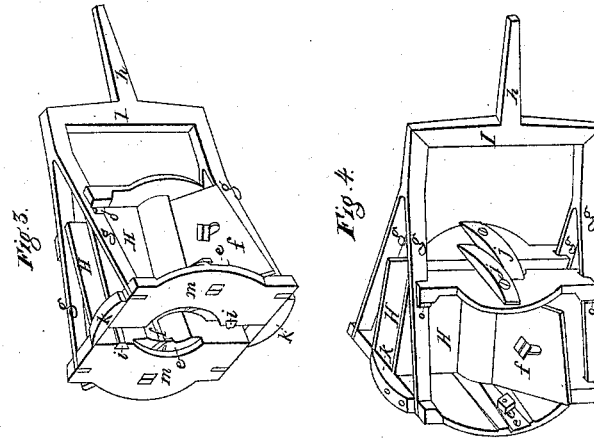


*E. H. Wisell,  
Hollow Auger,*

*No 7,556,*

*Patented Aug. 6, 1850.*



*E. M. Wisell,*

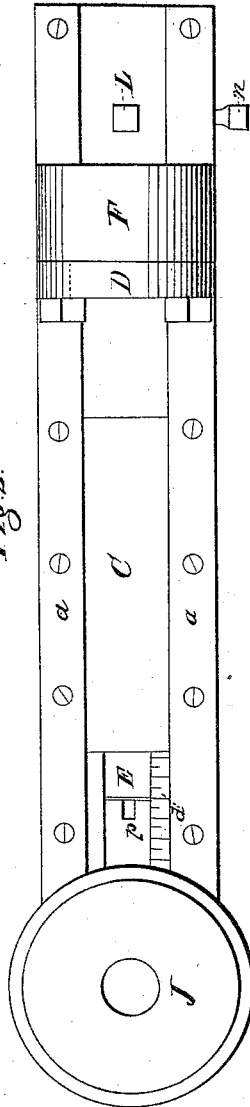
*Sheet 2-2 Sheets.*

*Hollow Auger,*

*No 7,556.*

*Patented Aug. 6, 1850.*

*Fig 2.*



# UNITED STATES PATENT OFFICE.

ELI K. WISELL, OF WARREN, OHIO.

## TENON-BIT.

Specification of Letters Patent No. 7,556, dated August 6, 1850.

*To all whom it may concern:*

Be it known that I, ELI K. WISELL, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Machines for Tenoning, Particularly Applicable to the Tenoning of Wheel-Spokes; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawing, in which—

Figure 1 represents a view in perspective of my clamp with a hub and a single spoke secured thereto; Fig. 2 is a plan of the same with the sliding block in a different position, and Figs. 3 and 4 are views of my tenoning bit in different positions.

My invention consists of a tenoning tool or bit of peculiar construction, which is adapted to an ordinary boring brace and is composed of converging slides in combination with a pair of planes, which embrace the extremity of the spoke, and which as the brace is turned and forced endwise toward the spoke, are caused to approach each other, thus reducing and rounding its extremity until the space between the plane irons is equal to the diameter of a finished tenon, when their closer approximation is stopped by gages secured to their opposite faces.

In the drawing, Figs. 1 and 2 represent the clamp, on which the wheel hub with its spokes is supported, and by which the particular spoke to be acted upon is firmly held. This clamp consists of a base board A having a groove B sunk in its upper surface the edges of which on each side of the groove are capped with plates *a a* which project over the groove as represented in the drawing. A block C, to the front extremity of which a standard D is secured, is constructed to slide longitudinally within this groove, the distance to which it can be moved toward the wheel hub being regulated by a gage E; the latter is constructed to slide longitudinally in a supplementary groove, sunk in the bottom of the larger groove, and is clamped in any required position by a clamp nut screwed upon a stem or fixed bolt which is projected from the bottom of the gage through a longitudinal slot *p* in the base board. The standard D is pierced with three parallel slots *b, c, b'*. The central one to admit the extremity of the spoke to be tenoned and the two side ones to admit two

fixed bolts or stems which are projected from an annular block F or collar which is passed over the extremity of the spoke and regulates the position of the shoulder of the tenon. A scale *d* is graduated upon the bottom of the groove by means of which the gage E can be set to regulate the position of the standard D.

The tenoning bit is represented in Figs. 3 and 4. It is composed of two equal plane stocks H H, each fitted with two cutters *e, f*, one of which (*e*) cuts the shoulder while the other (*f*), which is similar in its action to an ordinary plane iron, removes the wood from the shoulder to the outer extremity of the spoke. The two plane stocks are arranged facing each other on the V-formed prongs *g* of a forked frame I, upon which they slide in such manner that when pressure is applied to the shank *h* of the frame, and the plane stocks are prevented from moving in line with the pressure, the inclined jaws of the prongs in sliding along the plane stocks will force the latter to approach each other until their closer approximation is prevented by gage strips *i* inserted in dovetailed grooves formed in the faces of the plane stocks. Each plane stock is fitted with a cleat *j* which is secured to its side and projects over the corresponding side of the adjacent plane stock in such manner that the two plane stocks are caused to move simultaneously when acted upon by the forked frame. Cleats *k* are also secured to the ends of one or both plane stocks and project over the corresponding ends of the opposite plane stock, thus keeping the two immediately opposite each other. The cutters of each plane stock are adjustable and are secured in place by bolts and nuts so that they may be readily set or removed for sharpening. The plane stocks are prevented from slipping off the prongs of the forked frame by stops *o*.

In tenoning spokes with this apparatus the hub J with its spokes is secured to the clamp, and the gage E is set by the scale *d* to regulate the position of the annular block, which governs the position of the shoulder of the tenon. The particular spoke to be first tenoned is then brought in line with the center of the base board and the block C is slid toward the hub until it strikes the gage, the annular block F being thus brought over the extremity of the spoke to hold it in place. The tenoning bit pre-

viously fitted to a boring brace is then applied to the projecting extremity of the spoke, the face *m* of the bit being in contact with the face of the annular block F. The  
5 brace is then turned and at the same time pressed toward the hub; by the pressure the inclined jaws force the faces of the plane stocks toward each other, thus bringing the  
10 knives in contact with the wood which is quickly removed by them as the bit is turned; the turning and the pressure are continued until the gages *i*, strike the faces of the plane stocks opposite them, thus preventing the nearer approach of the plane  
15 irons, and consequently the further reduction of the spoke; the bit is then withdrawn from the finished tenon; the annular block F is removed from the spoke by sliding the block C outward from the hub J, and the  
20 latter is turned to bring a second spoke into place. The sliding block is then returned against the gage to bring the annular block over the extremity of the spoke, and the bit being reapplied, the second tenon is formed  
25 in the same manner as the first. The clamp may also be used with advantage for regulating the driving of spokes into the mortises of a hub; when used for this purpose a gage rod L is passed through a mortise in the  
30 base board and is clamped in its proper position by a clamp screw *n*; the spoke is then applied to the hub and is driven in the usual manner, the hub being supported upon a  
35 horse. The tenoning bit thus described is quite as

well adapted to being driven by machinery as by hand but in this case the stop F may be affixed to the spoke so that when the end of the latter is introduced between the cutters the stop will press against the end of  
40 the bit, thus forcing the planes along the conveying arms of the forks on which they are secured and causing them to approach and reduce the end of the spoke to a tenon of the required size as before described. 45

It is quite obvious that very great modifications may be made in the details and arrangement of the parts of the tenoning apparatus without any deviation from the principle of the invention, and I contemplate making such changes to adapt it to  
50 different kinds of work, and claim the right to such modifications the same as I claim it to that form of the apparatus herein more particularly described. 55

What I claim as my invention and desire to secure by Letters Patent is—

The combination of converging slides with a pair of planes, the latter being combined with the former in such manner that  
60 by pressure and turning they are caused to approach each other and reduce the extremity of the spoke to which they are applied substantially as herein set forth the slides and planes being turned by a hand  
65 brace or by machinery.

ELI K. WISELL.

Witnesses:

E. S. RENNICK,  
P. H. WATSON.