J. McCune,

Tenoning Spokes.

No. 5,173. Patented June 26, 1847.

Fig. 1

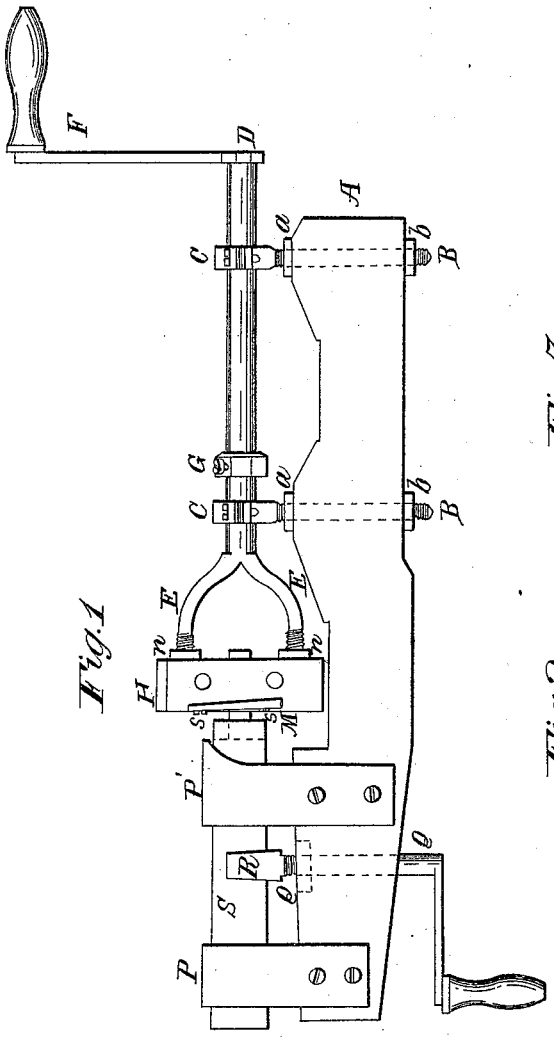


Fig. 3

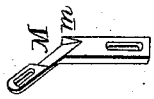
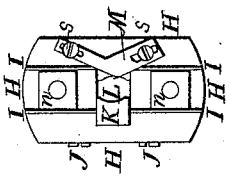


Fig. 2



UNITED STATES PATENT OFFICE.

JOHN McCUNE, OF SENECAVILLE, OHIO.

MACHINERY FOR CUTTING TENONS ON ENDS OF SPOKES.

Specification of Letters Patent No. 5,173, dated June 26, 1847.

To all whom it may concern:

Be it known that I, JOHN McCUNE, of Senecaville, in the county of Guernsey and State of Ohio, have invented a new and useful Mode of Cutting Round Tenons on the Ends of Spokes of Carriage-Wheels After the Spokes are Driven into the Hub, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a front view of cutter stock. Fig. 3 is a perspective view of the side of the knife next the stock, showing the right angled cutter.

The apparatus by which the round tenons are cut on the spokes, consists of a stock or block A, into which are inserted two adjustable posts B, B, containing adjustable boxes C C, in which are placed a shaft or mandrel D, having two branches E, at one end, and a crank F at the other end, and a gage G near the middle, said shaft having a longitudinal as well as a rotary motion, produced by the operator applying his hand to the crank F, turning and pressing it forward toward the spoke to be tenanted, or borne up by a spiral spring, wound around the said shaft or mandrel D, and bearing against the gage and post, or caused to revolve or advance simultaneously in any convenient way, the outer extremities or ends of the branches being made straight, and parallel, and in the form of screws, and passed through a stock H, or combined set of blocks, in which the cutter is fastened for cutting the tenons on the spokes. This stock is composed of four blocks H H H H, and four plates I I I I, held together by means of parallel transverse screws J, inserted through them transversely, the two parallel long blocks having shoulders at the middle, against which the two short blocks are brought and secured, and having a metallic block K with a concave rest, for the spoke placed below the knife, to prevent the wearing of the wood, an opening L being made in the center of the combined block, to admit the end of the spoke to pass through, while the cutter takes off the wood from the outside, leaving the center solid to form the tenon, which passes into the center of the said combined block. The cutter M, is an obtuse angled plate, with two cutting edges one vertical and the other at right angles thereto. The cutter is fastened over the central opening by screws, having a throat behind it designed to let the chips pass through it freely. The metallic plates which may be increased or diminished in number, for the purpose of moving the block to which the cutter is fastened farther from the center of the opening, in order to increase the size of the tenon to be cut. When required to be enlarged more plates must be inserted and when required to be diminished the plates must be removed.

The cutter M is made of a cast steel plate, in the form of an obtuse angle, as above stated, with two oblong mortises to admit set screws, by which it is fastened and adjusted to the revolving stock, having one of its sides M made sharp to make the vertical cut, and a lip *m* at right angles, also made sharp for taking off the surplus wood from around the center, forming the tenon which passes through the central opening. The cutter stock H, is fastened to the two branches E, of the mandrel, by four nuts *n* and screws, by which it can be adjusted at pleasure.

The apparatus is secured to the spoke to be tenanted by means of two semi-oval straps P P, fastened by their lower ends by screws to the stock A, so as to embrace the spoke to be tenanted, which is inserted into the space embraced by said straps, bringing that portion of the spoke which is to form the shoulder, even with the inner side of the inner strap P′ which is carried toward the cutter, the space inside the straps if too large for the spokes being bushed, or made to receive other straps, in order to make it correspond to the sizes of the spokes; the spokes being held firmly therein, by a screw Q, having a semi-circular bed plate R, at the end thereof, which is pressed against the under side of the spoke, drawing the strap P, down upon the spoke, by which the apparatus for cutting the tenon is held firmly in a suspended position, upon the end of the spoke during the operation of cutting the tenon. When the angle of the axis of the mandrel or shaft, is required to be changed in order to make it correspond with the angle of the required tenon, the nuts *a*, *b* on the screw posts must be turned so as to raise one end, and depress the other end. The apparatus being suspended, to the end of a spoke of a wheel, in a horizontal position, and the screw Q turned against the under side thereof, forces down the stock A, draw-

ing the yoke straps P down upon the spoke, till the connection is secured, and the apparatus prevented from slipping from the spoke. The gage collar G, is then set on the mandrel to correspond with the required length of the tenon. The axis is also properly adjusted. The crank F is then turned and pressed toward the spoke, the cutter then performs its office of removing the outside of the spoke in a circular form, leaving a round tenon in the center, which passes into the center of the stock H the full length, which is determined by the gage collar G, which is set to strike against the post B, when the cutter has advanced over the spoke as far as it is intended to go. The screw Q is then turned to the left, and the apparatus removed to another spoke which is treated in a similar manner. And so on with all the spokes.

The circle of the inner circumference of the fellies, must be described on the spokes, after being secured in the hub, by means of a tram, or other suitable implement, so as to be seen clearly that the curved end of the strap P′ may be brought to said scribe, and then the gage collar G being set in the required position on the mandrel, will be made to come in contact with the post, the moment the cutter reaches the aforesaid circular line, when the advance of the cutter will be arrested, by which operation, all the shoulders of the spokes will be in the same circle. The vertical knife or cutter is set slightly inclining, so as to cause it to take feed toward the shoulder of the tenon, without the necessity of pushing it forward by hand.

I am aware that round tenons have been cut on spokes of carriage wheels, in various ways, but, I am not aware of their ever having been cut by an apparatus similar to that above described, suspended to the end of each spoke, during the operation of cutting the tenon; and,

Therefore, what I claim as my invention, and desire to secure by Letters Patent, is—

The before described mode of cutting round tenons on the ends of the spokes of carriage wheels, by means of an apparatus constructed as above described, suspended to the end of each spoke, during the operation of cutting the round tenon thereon.

JOHN McCUNE.

Witnesses:

WM. P. ELLIOT,

ALBERT E. H. JOHNSON.