W. H. VON BEHREN.

Spoke Tenoning Machine.

No. 165,895. Patented July 20, 1875.

Fig. 1.

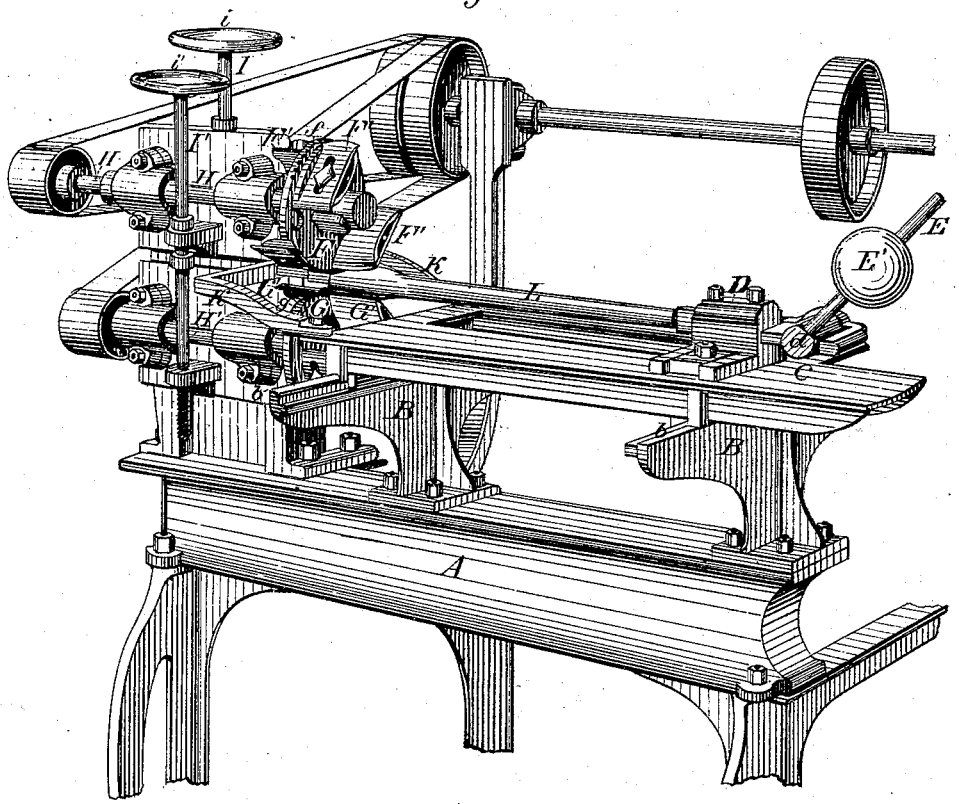

Fig. 2.

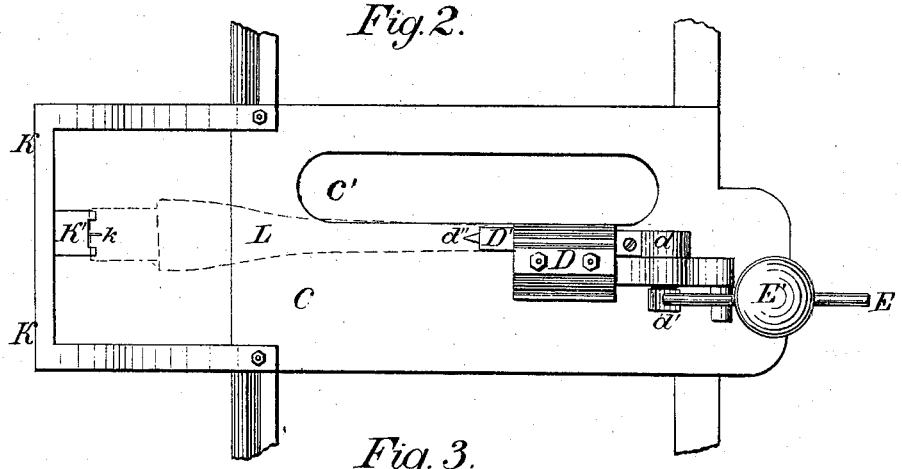

Fig. 3.

Attest:

C. H. Pelly
by Benj. Severson

Inventor:

W. H. Von Behren,
per L. Deane,
Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM H. VON BEHREN, OF LOGANSPORT, INDIANA.

IMPROVEMENT IN SPOKE-TENONING MACHINES.

Specification forming part of Letters Patent No. **165,895**, dated July 20, 1875; application filed June 14, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. VON BEHREN, of Logansport, in the county of Cass and State of Indiana, have invented certain new and useful Improvements in Spoke-Tenoning Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a perspective view of the machine; Fig. 2, plan of the table, showing the chuck and tail-block; and Fig. 3, a detail.

The present invention relates to that class of devices designed for facing and tenoning spokes; and the improvement consists more particularly in the method of holding the spokes between centers; also, in the general detail and combination of the machine, all as will now be more specifically and in detail set forth.

In the accompanying drawings, A denotes the bed; B, two ways set at right angles to the length of said bed, their feet or bases secured upon the upper face of said bed; C, the table, which is adapted to be moved back and forth upon the upper edges *b* of said ways, suitable grooves and guides being provided therefor in the ways and upon the under side of said table. The table top may be whole or have openings, as now shown at C′. These openings will be of use in disposing of the shavings, &c., arising from the operation of the machine. The tail-block D is secured to the upper face of the said table near its outer end, opposite to the cutting mechanism and on the front side. The tail block D can be moved horizontally to and fro in guides, upon the inner side of said block, by means of the eccentric *d*, which is operated by the weighted lever E fitted into the outer end of the shaft *d′* of the eccentric. This shaft is journaled in an extension of the tail-block, the said eccentric turning in a strap or band, the ends of which are fastened to the outer end of said tail-spindle. The weight E′ on said lever adapts the same to be held at any point where it may be placed. The inner end of said spindle—that is, the end nearest the cutter-heads—has upon it a point or center, *d″*, which is used in connection with the chuck K′ attached to circle-bar K at the other end of the machine, to hold the spoke in position when it is being offered to the cutter. Suitable motion can be imparted to the upper and lower double cutter-heads F F′ and G G′ by means of the shafts H H′ journaled in suitable bearings. The said cutter-heads are respectively keyed to the ends of said shafts, viz., F and F′ upon H, and G and G′ upon H′. The knives or cutters are secured to said cutter-head by screws in the usual way. The inner ones F′ and G′ are adapted for cutting the tenon, and the outer ones F and G for facing the shoulders. Between each of said double cutter-heads, and in the periphery, are secured two segmental saws, one opposite the other. One is now indicated at *f* in the upper, and another at *g* in the lower, double cutter-heads. In each instance the other saw would be on the periphery of the cutter-head directly opposite. The said upper and lower double cutter-heads can be adjusted vertically in any suitable relation to each other, and to the table and centers, so as to be operated in any desired manner upon the spokes, by means of the screw-rods I I′ turned by hand-wheels *i i*. By means of these the frames carrying the shafts to which said cutter-heads are attached can be raised or lowered to effect the purposes above indicated. The frames carrying said shafts, as above, are provided with suitable guides upon their outer ends or edges for this purpose. Motion can be imparted to the cutter-heads, &c., in any usual and ordinary manner.

Having thus described in general the construction and arrangement of my machine, I will now specify the details of its operation. The table is drawn forward upon its ways. The ends of the spoke L having been indented or notched, the inner end is then fitted upon the pin or center *k* in the chuck, and the outer offered to the point *d″* of the tail-block. The lever E is now turned downward, and the said point is driven into the indentation in the outer end of the spoke, and thus the spoke is firmly bound in position. The handle of the lever has a weight of sufficient size upon it to pre-

serve the position of the lever, and hold the spoke secure. The table is now pushed toward the revolving cutter-heads, and as the spoke-head passes by them the upper cutters and saws cut, dress, and tenon the upper side of the spoke end, and the lower performs the same operation on the under side. The lever is now turned up, and the finished spoke released, the table drawn forward, and another spoke placed in position.

As thus made and used my invention insures the fixed position of the spoke while passing between the cutter-heads, and prevents any variation of the tenon, so that the knives and saws are always sure to strike upon the desired parts and places in and upon the end of the spoke. By this means a great gain is made by preventing almost all the imperfect work, which is sure to come notwithstanding the utmost care in working the machine as now made and used.

Having thus described my invention, what I consider new, and desire to secure by Letters Patent, is—

1. The circle-bar K, in or upon which the center is fixed, combined with the double cutter-heads, to operate substantially in the manner and for the purposes set forth.

2. The movable table of a tenoning-machine, substantially as described, provided with a circle-bar at one end, having a center attached to it, and an adjustable center at the other end, combined to operate substantially as described.

3. The combination of a movable table, provided with a fixed center at one end and an adjustable center at the other, with double cutter-heads, substantially as and for the purposes described.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

W. HENRY VON BEHREN.

Witnesses:
THOS. B. HELM,
SIMON P. SHINN.