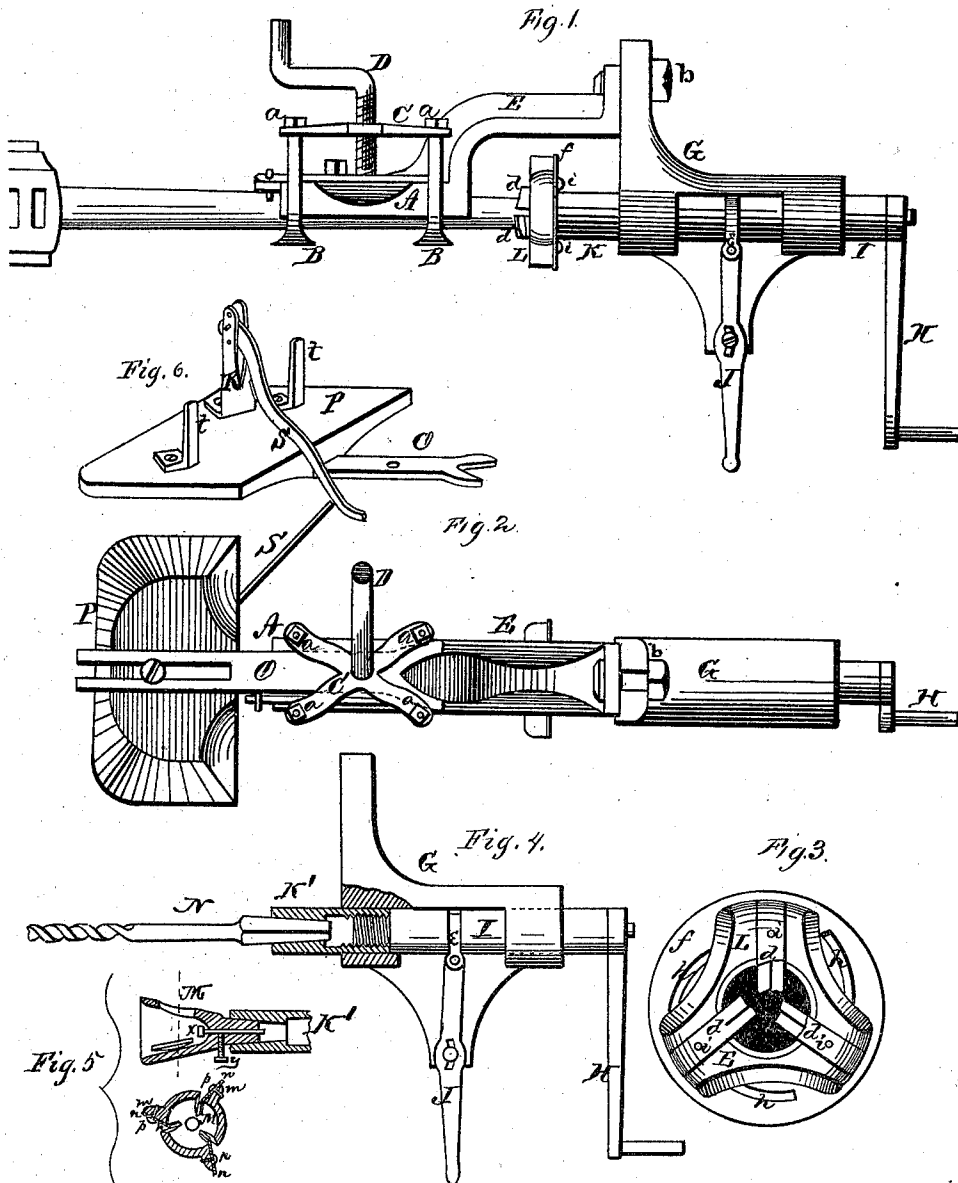


G. WITTER.
Tenoning and Boring Machines.

No. 140,754.

Patented July 8, 1873.



Witnesses:
James C. Hutchinson
C. R. Ewert

Inventor.
George Witter
Alexander M. M. M.
 Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE WITTER, OF SHERRILL'S MOUNT, IOWA.

IMPROVEMENT IN TENONING AND BORING MACHINES.

Specification forming part of Letters Patent No. **140,754**, dated July 8, 1873; application filed April 17, 1873.

To all whom it may concern:

Be it known that I, GEORGE WITTER, of Sherrill's Mount, in the county of Dubuque and in the State of Iowa, have invented certain new and useful Improvements in Tenoning and Boring Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for tenoning and pointing spokes and for boring fellies, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view of my machine as used for tenoning spokes. Fig. 2 is a plan view of the same with the felly-boring attachment placed thereon. Fig. 3 is an enlarged front view of the hollow auger. Fig. 4 shows the attachment of the auger for boring fellies. Fig. 5 shows the spoke-pointing attachment; and Fig. 6 shows the device for holding the felly while being bored.

A represents a bar grooved on its under side to fit on or over the end of a spoke. It is held on the spoke by means of two staples, B B, the shanks of which pass upwardly through a frame, C, and held by nuts *a a*. A screw, D, is passed down through the center of this frame against the upper side of the bar, whereby the staples B B are tightened and the bar held firmly on the spoke. From the bar A extends a bent arm, E, which is fastened by a bolt and nut, *b*, to a frame, G, which may be adjusted up and down, as desired, by means of a slot through which the bolt *b* passes. In suitable bearings in the frame G is placed a horizontal shaft, I, turned by means of a crank, H, and moved endwise by means of a lever, J, which is slotted and pivoted on the frame G, as shown. The upper end of this lever is pivoted to a band, *e*, which passes around the shaft I in a groove

on the same. On that end of the shaft I nearest to the spoke is screwed a cylinder or tube K, on the outer end of which is secured a head, L. This head is provided with three radiating grooves at equal distances apart for the reception of the three sliding cutters *d d*. Back of the head L, on the screw-tube or cylinder K, is placed a loose washer, *f*, provided with three eccentric slots, *h h*, through which screws *i i* pass through slots in the head L into the cutters *d d*, for the purpose of securing said cutters in the head.

The screws *i i* being loosened, the washer or plate *f* may be turned in either direction which moves the cutters equally and simultaneously out or in, thus adjusting them so as to cut any sized tenon desired. After the cutters are adjusted the screws *i i* are tightened to hold them in their places. By now operating the hollow auger thus constructed, revolving it by the crank H with one hand and moving it forward by the lever J with the other hand, the tenon on the spoke to which the machine is secured by the staples B B is readily cut.

For pointing the spokes the hollow auger is removed and a sleeve or tube, K', is screwed on the end of the shaft I, the outer end of said sleeve or tube having a square tapering hole for the reception of the shank *k* of a hollow cone, M, which is shown in Fig. 5. This cone has on the outer side three ears or projections *m m*, to each of which a slotted knife or cutter, *n*, is secured by a screw, *p*, passing through the slot into the ear; and the knives pass through slots into the interior of the cone. Through the shank *k* passes longitudinally a headed pin, *x*, which may be moved to any point in the cone and held by a set-screw, *y*. By the adjustment of this pin and the knives the spoke may be made more or less pointed as desired.

For boring fellies the arm E is to be held in a vise, the machine being turned bottom side up, and in the sleeve or tube K' an auger or bit, N, is inserted, Fig. 4. On the now under side of the bar A is secured a slotted arm, O, upon which a platform, P, is adjusted out or in at will. On this platform is a slotted stand-ard, R, in which a lever, S, is pivoted, said le

ver being brought down upon the felly to hold the same against posts *t t* while it is being bored by the auger or bit N.

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

The combination, with the bar A, arm E, frame G, shaft I, and auger N, of the slotted bar O, adjustable platform P, standard R with lever S, and the posts *t t*, all constructed and

arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of March, 1873.

GEORGE WITTER.

Witnesses:

EDWARD FRIES,

BENJAMIN WITTER.