(No Model.)

O. ALLEN.

SPOKE TENONING AND TAPERING MACHINE.

No. 279,117. Patented June 12, 1883.

FIG-1-

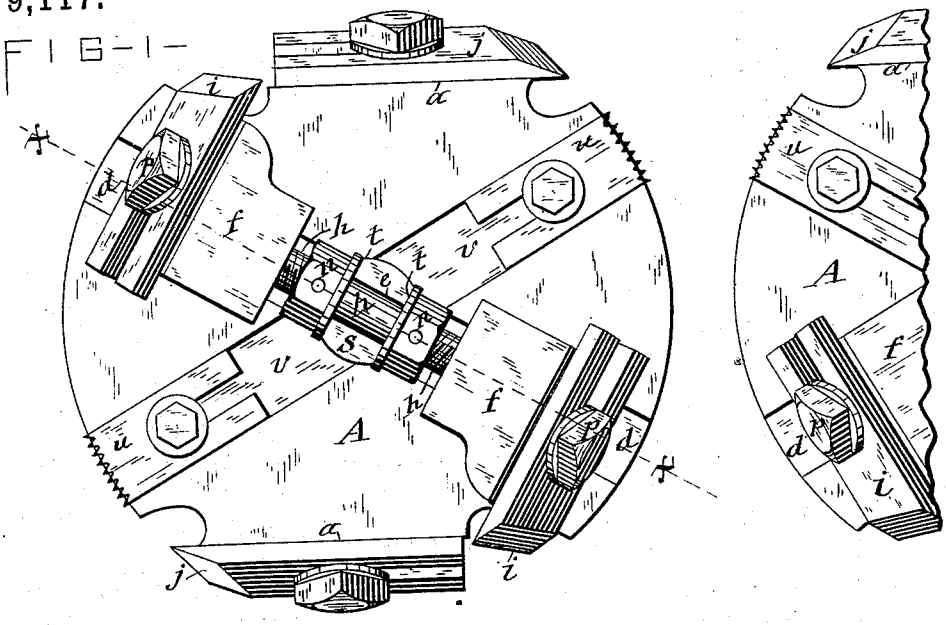


FIG-2-

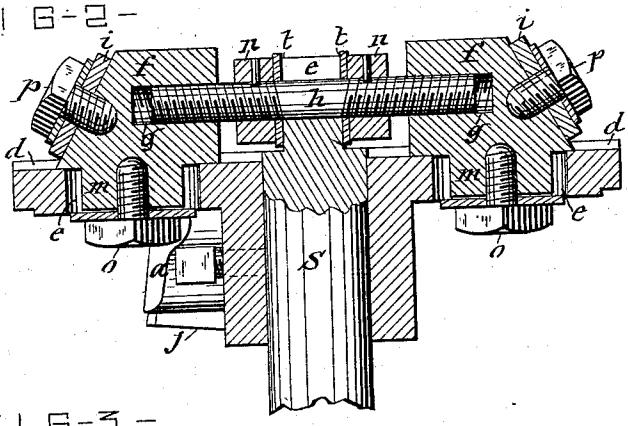
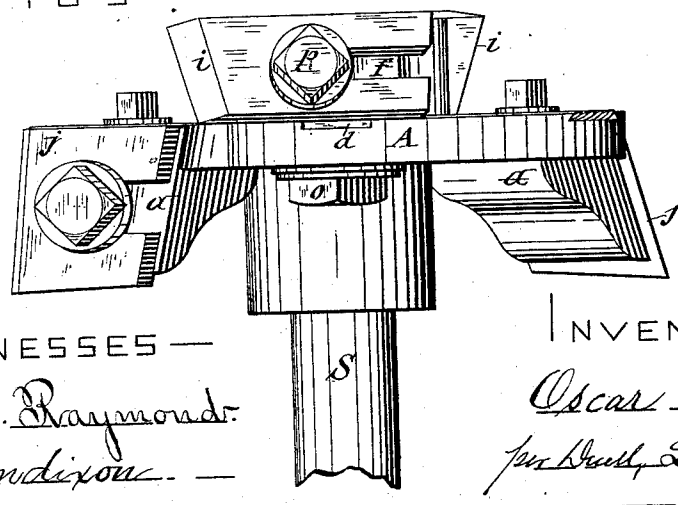


FIG-3-



WITNESSES—

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INVENTOR—

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per Dodd, Laass & Hay

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UNITED STATES PATENT OFFICE.

OSCAR ALLEN, OF MOUNT MORRIS, NEW YORK.

SPOKE TENONING AND TAPERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 279,117, dated June 12, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, OSCAR ALLEN, of Mount Morris, in the county of Livingston, in the State of New York, have invented new and useful Improvements in Spoke Tenoning and Tapering Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The purpose of this invention is to form at one operation on the end of spokes the tenon by which they are secured to the hub and the usual adjacent bevel by which the spokes are fitted to each other, thereby effecting a great saving of time and labor in the manufacture of spokes, and at the same time producing better and more accurate work by simpler and more convenient means. This object I accomplish by means of two duplex cutter-heads arranged diametrically opposite each other, each of said cutter-heads carrying two sets of cutters, arranged to cut in adjoining planes and set at different angles and at different distances from the axes of the cutter-head, all as hereinafter more fully explained, and specifically set forth in the claims.

In the accompanying drawings, Figure 1 is a face view of my improved cutter-head. Fig. 2 is a transverse section on line *x x*, and Fig. 3 is a side view of the same.

Similar letters of reference indicate corresponding parts.

A represents the duplex cutter-head, mounted on an arbor, S, which is journaled on a frame, (unnecessary to be here shown,) said cutter-head being adapted for most any ordinary spoke tenoning or beveling machine, and for most any feed mechanism, two of said cutter-heads being arranged diametrically opposite each other and in the same plane, so that their cutters will operate respectively upon opposite sides of the spoke, which is introduced between them in any suitable and well-known manner. Each of these cutter-heads is provided with two sets of cutters, *i* and *j*, arranged to cut in adjacent parallel planes and adjustable independently of each other relative to the depth of their cutting, the cutters *i* projecting from the front of the cutter-head and cutting the bevel on the spoke adjacent to the tenon, and the cutters *j* forming said tenon, said cutters being secured in their respective positions by the following instrumentalities:

The face of the cutter-head A is provided with a diametrical groove, *d*, in which are fitted to slide two dogs, *f f*, the outer side of which is beveled and has secured to it the cutter *i*, which has a slot through which its attaching-bolt *p* passes, and is thus adapted to be set for a greater or less depth of cut. The inner end of the dogs is provided with a screw-threaded socket, *g*, in which works a screw-bolt, *h*, which is threaded right and left, respectively, at opposite ends, so that by turning said bolt the two dogs *f f* are caused to synchronously approach and recede to and from each other. Said bolt is prevented from moving longitudinally by passing through a diametrical slot, *e*, in the end of the arbor S, which protrudes at the front of the cutter-head and is squared or formed with straight faces *t* at right angles to the slot *e*, against which faces the bolt *h* is shouldered by nuts *n n*, which are made to serve two purposes—viz., to set the two dogs equidistant from the center of the cutter-head, and to afford a hold for the wrench in turning the bolt when desired to adjust the dogs when required. The first is accomplished by turning the nuts on the bolt, so as to shift it longitudinally, and the second is obtained by keying or otherwise fastening the nuts on the screw-bolt. The cutter-head is provided underneath the dogs *f* with an elongated aperture, *e*, in range with the diametrical groove *d*, and into this aperture projects a lug, *m*, fixed to the dog *f*, said lug being provided with a screw-threaded socket, with which engages a clamping-bolt, *o*, inserted from the back of the cutter-head, by means of which bolt the dog is securely clamped on the cutter-head. This clamping device, however, may be dispensed with by making the groove *d* dovetail shaped. The periphery of the cutter-head is provided with cheeks or shoulders *a*, which extend from the front or face of the cutter-head rearward and have secured to them the cutters *j*, by means of which the tenon is formed on the end of the spoke. The cutting-edges of the cutters *j* terminate flush with the face of the cutter-head, and are thus made to cut in a plane adjacent to and parallel with the plane in which the cutters *i* operate. The cutters *j* are arranged adjustable in their depth of cutting in a manner similar to the cutters *i*.

u u denote two saw-blades adjustably secured

in a groove, *v*, in the face of the cutter-head and projecting sufficiently from the edge thereof to trim the shoulders at the junction of the tenon with the beveled portion of the spoke.

It will be observed that by introducing the end of the spoke between two of the described rotary duplex cutter-heads arranged diametrically opposite each other a proper distance apart and in the same plane the tenon and adjacent bevel is formed on the spoke at one operation, and the same can be accomplished by any workman capable of operating an ordinary tenoning-machine, and since the respective cutters are fixed in their required positions it is obvious that their operation is positive and accurate. Furthermore, my improved combined tenoning and beveling tool is adapted for any ordinary feed mechanism.

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

1. In a machine for tenoning and beveling spokes, the combination of two duplex cutter-heads arranged diametrically opposite each other, each of said cutter-heads carrying two sets of cutters arranged to cut in adjoining planes and set at different angles and at different distances from the axes of the cutter-head, substantially as set forth and shown.

2. The combined spoke tenoning and beveling tool, consisting of the cutter-head A, mounted on the arbor S and provided with the rearwardly-projecting cheeks *a*, the cutters *i*, secured to and projecting from the front of the cutter-head, and the cutters *j*, carried on the cheeks *a* and having their cutting-edge terminating flush with the front of the cutter-head, substantially as described and shown.

3. The combination of the cutter-head A, provided with the diametrical groove *d*, the arbor S, protuding at the front of the cutter-head and having its extremity formed with the slot *e* and straight faces *t*, the dogs *f*, sliding in the groove *d* and provided with the sockets *g*, the right and left screws *h*, lying in slot *e* and shouldered on the faces *t*, and the cutters *i i*, secured to the dogs *f*, substantially as described and shown.

4. In combination with the cutter-head A, provided with the groove *d* and the dogs *f*, sliding in said groove and provided with the screw-threaded socket *g* and with the cutters *i*, the arbor S, projecting through the cutter-head and provided with the diametrical slot *e* and squared faces *t t*, the right-and-left screw-bolt *h*, passing through the slot *e* and entering the sockets *g g*, and the nuts *n n*, adapted to be fixed in their position on the said screw-bolt, substantially as described and shown, for the purpose set forth.

5. The combination of the cutter-head A, provided with the diametrical groove *d*, elongated aperture *e*, and with cheeks *a*, projecting rearward from the front edge of the cutter-head, the dogs *f*, sliding in groove *d* and provided with the lug *m* and socket *g*, the arbor S, protruding through the cutter-head and provided with the slot *e*, the right-and-left screw-bolt *h*, lying in slot *e* and provided at opposite sides of the arbor with fixed nuts *n*, the cutters *i* and *j*, secured, respectively, to the dogs *f* and cheeks *a*, and the clamping-bolt *o*, engaging the lug *m*, all constructed and combined substantially in the manner and for the purpose specified and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 25th day of March, 1883.

OSCAR ALLEN. [L. S.]

Witnesses:

WILLIAM C. RAYMOND,

FREDERICK H. GIBBS.