J. R. COLEMAN & S. MYERS.

Machine for Tenoning Spokes.

No. 164,718. Patented June 22, 1875.

Fig. 1

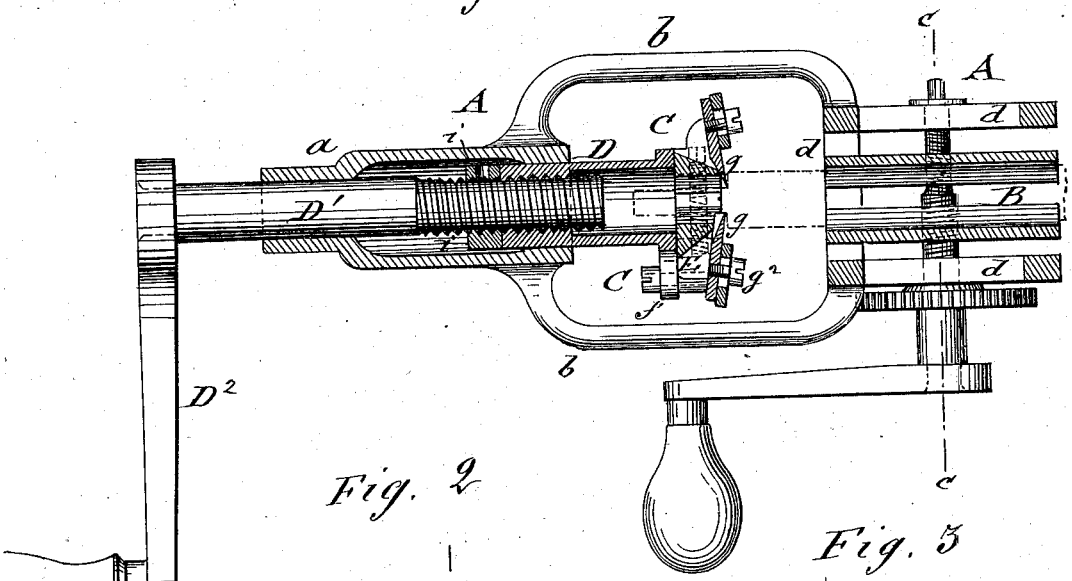


Fig. 2

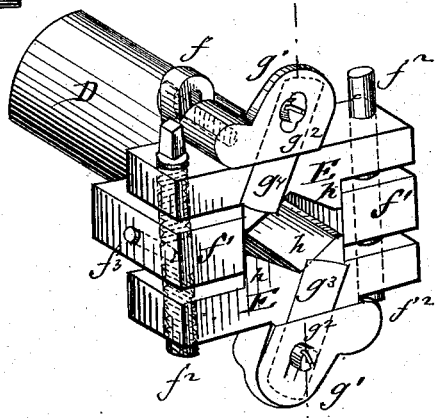


Fig. 3

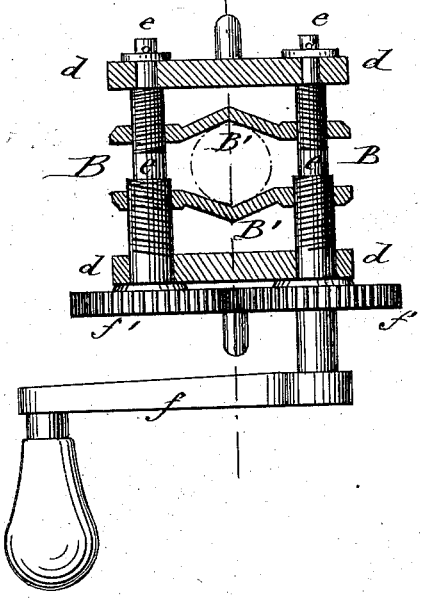
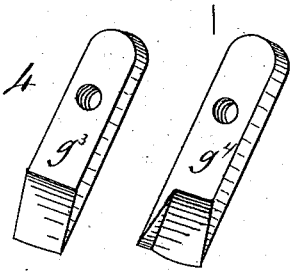


Fig. 4



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UNITED STATES PATENT OFFICE.

JOSHUA R. COLEMAN AND SAMUEL MYERS, OF GALION, OHIO.

IMPROVEMENT IN MACHINES FOR TENONING SPOKES.

Specification forming part of Letters Patent No. **164,718**, dated June 22, 1875; application filed March 1, 1875.

To all whom it may concern:

Be it known that we, JOSHUA R. COLEMAN and SAMUEL MYERS, of Galion, in the county of Crawford and State of Ohio, have invented an Improvement in Machines for Tenoning Spokes, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional side elevation of our improved spoke-tenoning machine; Fig. 2, a perspective view of the cutter-head detached; Fig. 3, a vertical transverse section of the spoke-clamping device, taken on the line *c c*, Fig. 1; and Fig. 4, detail perspective views of the adjustable cutting-knives.

Similar letters of reference indicate corresponding parts.

In our improved machine the spoke is accurately centered in relation to the cutter-head by means of angular clamping-plates operated by right and left screw-threaded shafts. The jaws of the cutter-head have angular faces, which bear upon the tenon, whatever be its form or size, at four different points, thereby supporting and steadying it under the action of the cutters. The crank-shaft, which rotates the cutter-head, works in the tubular stem of the cutter-head, and a burr or screw-collar determines their relative adjustment, and thereby the length of the tenon, all as hereinafter described.

In the drawing, A represents the main supporting-frame of our improved tenoning-machine, which consists of a tubular guide-stock, *a*, having handle-arms *b* branching out from the same, and of a rectangular frame part, *d*, at the end of the same, to which the spoke-clamping device B is applied. This consists of two plates, B′ B′, each of which has an angular lengthwise channel in its inner side, so that when the plates are clamped upon a spoke they will have each two points of contact with the spoke, whereas in other machines of this class there is but one point of contact. The plates B′ B′ are likewise caused to advance toward or recede from each other in equal degree. The result of this construction and arrangement of the plates B′ B′ is that the spokes are severally clamped more firmly, and more accurately centered with relation to the cutter-head than in other machines, whose clamping-plates have inner faces which are sections of an oval or an ellipse, and but one of which is movable. Meshing spur-gears f^1 are keyed on the heads of shafts *e*, and one of the latter is operated by a crank. The auger or cutter-head C, that tenons the ends of the spokes after the machine has been fastened, as described, slides by a hollow stem, D, in the tubular guide part *a* of main frame A. The stem D is fed forward and backward by an internal screw-thread fitting on the threaded shaft D^1 of main crank-lever D^2. Stem D is cast or otherwise provided with extension arms or lugs *f* at opposite sides, which are slotted to allow the adjustment of the cutter-jaws E. Jaws E are shown in perspective view in Fig. 2, the cutting-knives *g* being attached in an adjustable manner to the guide-recesses and slotted bearings g^1 of the same, and firmly set in the required position by clamp-screws f^2. The inner faces of the jaws E have an angular form corresponding to clamping-plates B′ B′; hence the spoke-tenon is held steady under the action of the cutters, there being four points of contact between it and the jaws E instead of two, as in other machines. Stem D has also two strong projecting parts, f^1, which extend at nearly a right angle to the arms *f*, and serve to furnish the support to the jaws E, being set to any size of tenon by means of right-and-left screw-bolts f^2. The double bolts f^2 are firmly secured after adjustment by a set-screw, f^3, applied to the same through the parts f^1. The cutting-knife g^3 is made with a straight plain edge, while the other, g^4, is made with a similar edge, and, in addition thereto, with a projecting-lip, which dresses the tenon evenly, as shown in Fig. 4.

The length of the tenon is regulated by the adjusting burr or collar *i*, that is set on the crank-shaft D^1. The turning of the main crank produces the forward feeding of the cutter-head on the spoke until the collar *i* comes in contact with the stem D, the check given by the collar when the full length of the tenon is reached producing a perfect shoulder on the spoke. The machine is rapidly applied to the spoke and the tenon cut, then taken off and placed on the next spoke, and so on, tenoning thereby in accurate manner

all the spokes of the wheel without handling the same, or changing its position on the wheel-stool, so as to form a valuable substitute for the present tenoning implements and tools.

We are aware it is not new to employ angular plates for clamping spokes and hubs while being tenoned or mortised; and we do not claim such mechanism, broadly.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In the tenoning-machine herein described, the combination, with the tubular guide-stock *a*, of screw-threaded shaft D^1, the tubular stem D, carrying cutter-head C, and threaded internally, as specified, and the burr *i*, adjustable on the threaded portion of said shaft, all constructed and arranged as shown and described, whereby the parts D^1 and D are locked together during the operation of cutting the tenon, and the length of the latter is determined by their relative adjustment, as set forth.

2. In the improved tenoning-machine herein described, the angular clamping-plates B B, right-and-left screw-shafts *e e*, and meshing-gears f^1, in combination with the angular jaws E E, bolts f^2, tubular stem D, screw-shaft D^1, and burr *i*, all constructed and arranged to operate as shown and described, whereby the clamping and cutting mechanisms are coincidently adjustable in the frame A, as and for the purpose specified.

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Witnesses:
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