(No Model.)

E. M. JENKINS.

FELLY BORING AND SPOKE TENONING MACHINE.

No. 294,628. Patented Mar. 4, 1884.

Fig. 1.

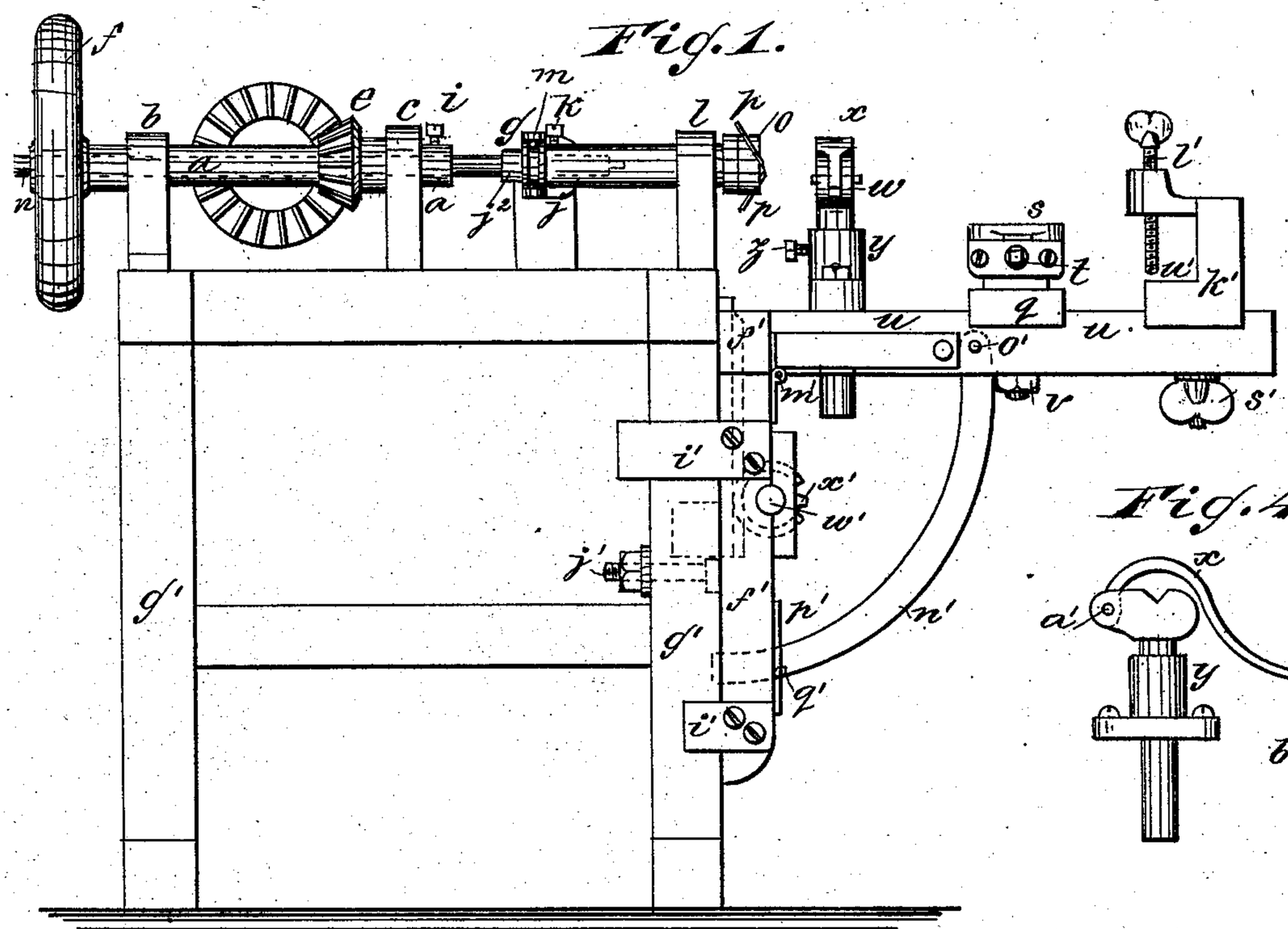
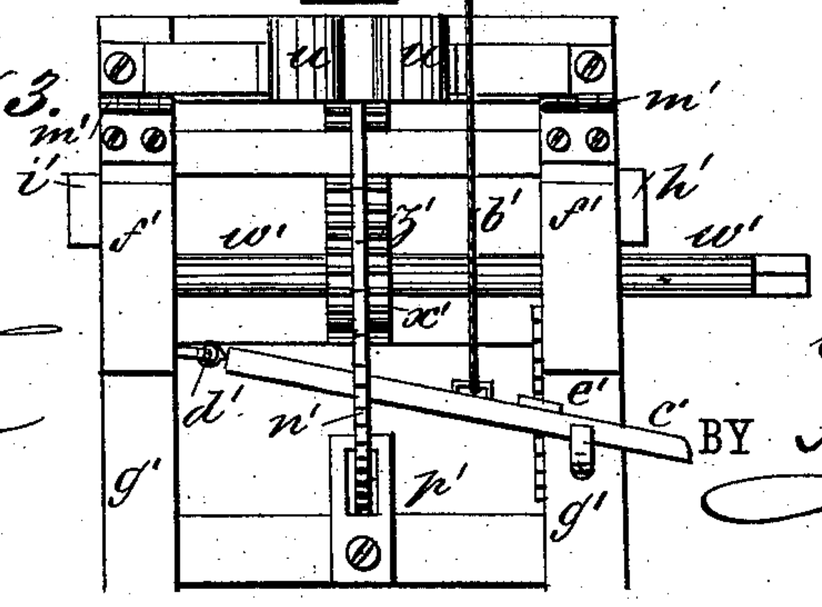


Fig. 4.

Fig. 2.

Fig. 3.



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EDWIN MARVIN JENKINS, OF BROWNING, MISSOURI.

FELLY-BORING AND SPOKE-TENONING MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,628, dated March 4, 1884.

Application filed June 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWIN MARVIN JENKINS, of Browning, in the county of Linn and State of Missouri, have invented a new and useful Improvement in Felly-Boring and Spoke-Tenoning Machines, of which the following is a full, clear, and exact description.

The invention will first be described in connection with the drawings and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improved machine. Fig. 2 is a plan view, and Fig. 3 is an end elevation of a portion of the machine.

On any suitable bench I arrange a hollow mandrel, *a*, in bearings *b* and *c*, to be turned by hand or power, to be applied by the driving-shaft *d* and bevel-wheels *e*, said mandrel having a balance-wheel, *f*, to steady the motion, and in the hollow of the mandrel is a shaft, *g*, having a key-seat, *h*, its whole length, and being arranged to slide in the mandrel, to which it is connected by a set-screw, *i*, to be rotated by it. This shaft *g* projects from the end of the mandrel into the hollow cutter and boring-socket *j*, and is firmly secured to it by a set-screw, *k*, by which the socket may be shifted forward and backward along the shaft to regulate the length of the tenon or depth of the hole to be made, by sliding the socket and its tool forward and backward in its bearing *l* by the lever *m*, which has a forked end embracing the shaft *g* between the end of socket *j* and a collar, j^2, that is secured to the shaft by a set-screw, k^2, to be shifted as the socket is shifted. The shaft *g* has a head or other stop at *n*, to limit its sliding movement in the mandrel *a*, and thus the length of the tenon or depth of the hole is regulated in accordance with the position to which the socket *j* is fixed on the shaft *g* by screw *k*.

The tenoning-tool consists of a hollow tenoning-head, *o*, with cutters *p*, which connects detachably with the end of socket *j*, and is removable to insert a common auger for boring the fellies.

For holding the wheel-hubs containing the spokes to be tenoned, I have a self-centering hub-chuck consisting of a stock, *q*, jaws *s*, and the right and left hand adjusting-screw *t*, mounted on the table *u* adjustably toward and from the tenoning-tool, and having a clamp-bolt, *v*, to secure it, and between the hub-chuck and said tenoning-tool I have a spoke-holder consisting of a rest, *w*, and clamping-bar *x*, the rest *w* being vertically adjustable in a socket-post, *y*, by a set-screw, *z*, and the clamp-bar which is pivoted to the top of the rest at *a'* is connected by a cord, *b'*, with a lever, *c'*, which is pivoted to the frame at *d'*, and has a ratchet, *e'*, by which it is set to press the clamping-lever on the spoke.

The table *u* is attached to a frame, *f'*, that is held against the side of the mandrel-frame *g'* by guide-clips *h'* and *i'*, and a clamp-bolt, *j'*, and is arranged to be shifted up and down readily to set the hub-chuck *q s*, and also the felly-clamp *k' l'* in the proper relations with the tool-socket, and said table *u* is also jointed to the frames *f'* at *m'* to swing down out of the way for economy of space when the machine is not in use. The curved brace *n'* holds the table up in the working position, said brace being pivoted to the table at *o'* and working in a slotted plate, *p'*, with which it engages by a notch, *q'*, to secure the table in the working position.

The felly-clamp consists of the block *k'*, with fastening-screw *s'*, to secure it in position on the table *u*, and the clamp-screw *l'*, by which the felly is secured on the rest *u'*, to be held to the boring-tool.

When the machine is to be used for tenoning spokes, the felly-clamp will be removed from the table, the tool *o p* being then used, and when the fellies are to bored the tool *o p*, spoke-rest, and the hub-chuck will be removed, the felly-clamp and a common auger being then used.

The frame *f'* has a shaft, *w'*, and pinion *x'*, mounted on it, for raising and lowering it by a toothed rack, *z'*, attached to frame *g'*.

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

1. The combination of the rotary hollow mandrel *a*, adapted to carry a tenoning-head or boring-bit, and a hollow cutter and boring-socket, *j*, with a shaft, *g*, arranged to slide in said socket and mandrel and be screw-clamped thereto, having a key-seat along its whole length, and provided with a stop, *n*, as and for the purpose described.

2. The combination, with the table *u*, of the chuck *q s* on a transverse right and left screw, *t*, the clamping-bolt *v*, the rest *w*, held at different adjustments in a socket-post, *y*, by a screw, *z*, and arranged between the spoke-holder and tool, the clamp-lever *x*, pivoted to the top of said rest, the lever *c'*, connected by a cord with lever *x*, and pivoted to the frame at *d'*, and the ratchet *e'*, as and for the purpose specified.

3. The combination, with the chuck *q s* and felly-clamp *k' l'* of a table, *u*, arranged to shift up and down to determine the relation of said chuck and clamp to the tool-socket, as shown and described.

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