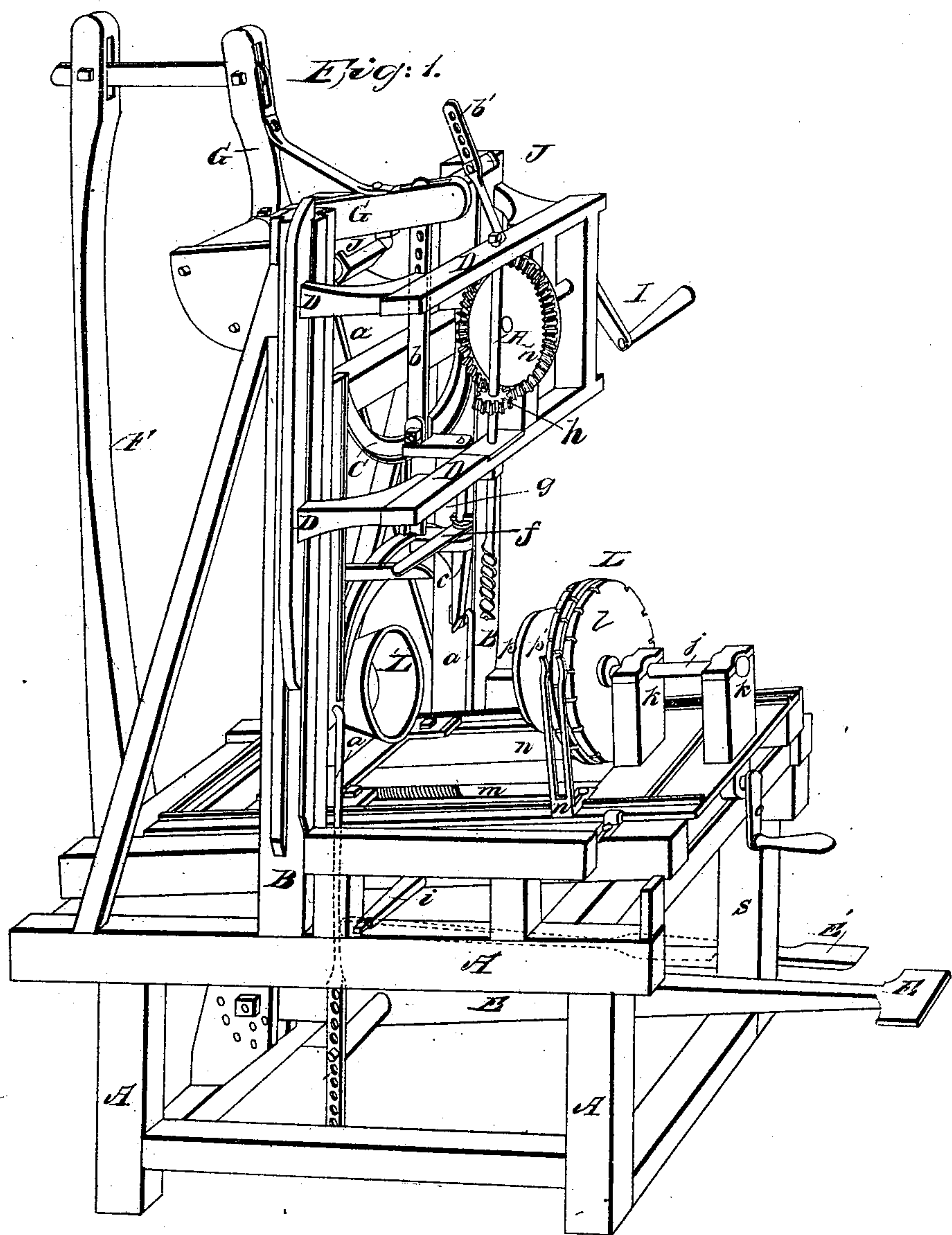


E. K. WISELL.
Mortising Machine.

No. 7,045.

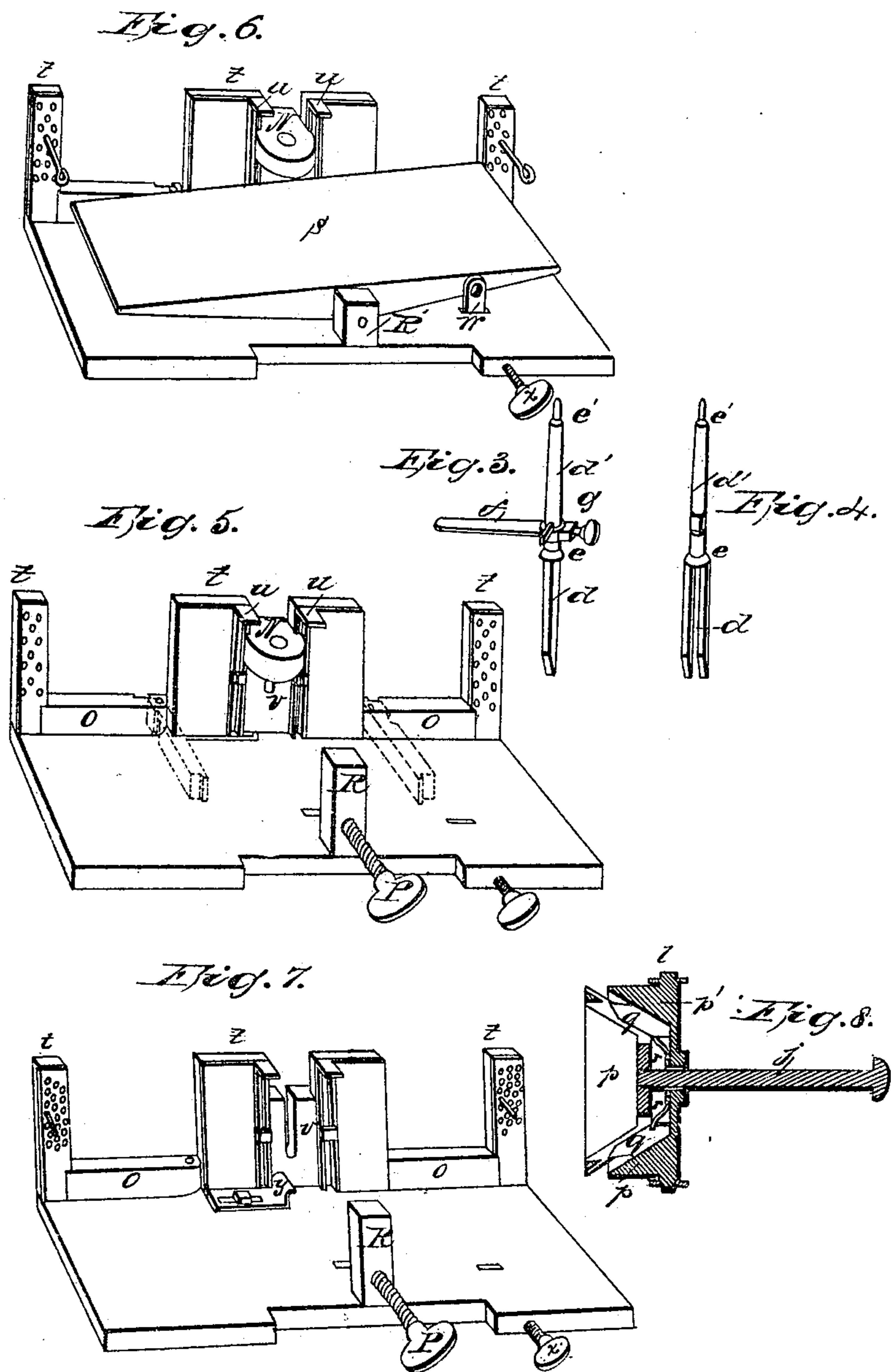
Patented Jan. 22, 1850.



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UNITED STATES PATENT OFFICE.

E. K. WISELL, OF WARREN, OHIO.

CHUCK FOR BORING AND MORTISING MACHINES.

Specification of Letters Patent No. 7,045, dated January 22, 1850.

To all whom it may concern:

Be it known that I, ELI K. WISELL, of Warren, in the county of Trumbull and State of Ohio, have invented a new and useful Improvement for Mortising-Machines Particularly Applicable to the Use of Wheelwrights and Carriage-Makers; and I do hereby declare that my invention is fully and clearly set forth in the following description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a perspective view of my machine, and Figs. 2, 3, 4, 5, 6, 7 and 8, are views of various detached parts of the machine.

My machine consists of a strong frame, A, or bench, and the several devices mounted thereon as seen in the drawings. Two parallel standards B, B, suitably connected with each other are erected on the opposite sides of this bench. These support the guides of two gates C, D, the one, C, of which carries the mortising chisel, and the other D, a spindle to whose lower extremity auger bits are fitted. The chisel gate is connected by two connecting rods *a, a*, with a treadle E, to which the foot of the operator is applied to force the chisel into the wood, the return motion or up stroke of the gate being effected by a spring, F, acting through a bell crank G, and connecting rod *b*. This gate has two arms projecting from it which support the chisel, *c* whose construction is more clearly shown at Fig. 3, *d* being the blade, and *d'* the shank; *e, e'*, are conical shoulders which bear against the arms and *f* is a lever by turning which the position of the cutting edge is reversed. This lever fits upon a squared portion of the shank and is kept in place by a wedge, *g*, passed above it through a mortise in the chisel shank. The auger gate, D, projects in front of the chisel gate and supports a mandrel, H, to the lower end of which the boring bit is secured, a rotary motion is communicated to the mandrel by a crank, I, acting through the intervention of the wheels *h, h'*, by which a proper speed is given to the boring bit; the natural tendency of a screw auger when turned is to draw itself into the wood therefore the weight of the gate is sufficient to cause it to enter without the application of additional pressure, when the hole is bored to a sufficient depth the bit is withdrawn by the foot lever E' acting through a connect-

ing rod *a'* attached to the hinder extremity of a bent lever, J, whose front extremity is connected by a rod *b'* with the auger gate.

Two ways parallel with each other are secured lengthwise to the top of the bench beneath the gates C, D. These ways support and guide the carriage K, on which the object to be bored or mortised is secured. A feed motion is given to the carriage by securing to its under side a rack which gears into a pinion mounted upon a shaft *i* to whose outer extremity a wrench is applied; by moving this wrench the carriage is propelled either forward or backward beneath the gates. In order to support wheel hubs for the mortising of which this carriage is more especially intended two heads L, L', are mounted upon the carriage; the front head, L, is composed of a spindle, *j*, supported in standards *k, k*, secured to the carriage; a disk plate *l* is mounted upon the inner extremity of the spindle and has its periphery divided into one or more sets of divisions corresponding with the different number of spoke mortises required in the hub; suitable spring catches *n, n* are attached to the carriage which catching in the divisions of the disk hold it from turning during the action of the auger or chisel. Immediately facing this fixed head is the moving head L' which slides on the carriage to and from the first, L; its position being varied by a screw *m* to whose outer extremity a crank, *o*, or a hand wheel is applied.

The hub to be mortised is secured between the two heads in the same manner as in a vise by turning the screw *m*. In order that the mortises may all radiate from the center of the hub a self centering chuck of peculiar construction is attached to one or both heads by means of which the hubs are made to center themselves. This chuck consists of a hollow slotted cone *p*, fitting within a corresponding conical socket *p'*, secured to the disk *l*, of the head. Jointed or edged dogs *q, q*, (see Fig. 8) are secured to the interior of the conical socket, these are sufficiently long to project through the slots made in the hollow cone and enter the hub in contact therewith when the cone is in contact with its conical socket. The hollow cone is secured to the extremity of the spindle *j* and is held by springs *r*, at such a distance from its conical socket through which the spindle passes that the edges of the dogs do not

enter the hub until sufficient force is applied to compress the springs. If now a hub be inserted between the two heads and the clamp screw *m* be turned, as the two chucks approach each other the ends of the hubs will move within the hollow cones until they find a solid bearing which can only take place when they are truly centered, the further turning of the screw will compress the springs and forcing the dogs to enter the hub will secure it from turning. The first operation performed is the boring a hole with the auger in order that the mortising chisel may be worked with greater facility this boring is effected by lowering the auger gate and applying the hand to the crank *I*. If more than one hole is required the carriage is moved beneath the gate by turning the pinion spindle *i*. When a sufficient number of holes have been bored the auger gate is raised out of the way and made fast by securing its foot lever *E'* by a pin thrust above it in a hole made in one of the legs, *s*, of the bench. The hub is then brought beneath the mortising chisel and by the application of the foot to the treadle *E* the mortise is finished in the usual manner. When one mortise is finished the disk *l* is released from the spring catch and being turned and secured in a new position a new mortise is made. The spring catches *n* when not in use can be drawn back and held out of gear with the divided periphery of the disk, and the boring of the several holes required for all the spoke mortises may if preferred be completed before the hub is subjected to the mortising chisel.

This machine is also adapted for mortising or boring lumber of all descriptions. When used for this purpose the carriage is removed and a table, Fig. 5, is secured to the bench by screws. The lumber is supported against standards *t*, *t*, erected on the table and is prevented from rising during the upstroke of the chisel by two adjustable stops *u*, *u*, which are set to the depth of the stuff. In boring deep holes it may be necessary to steady the boring bit. This is accomplished by a guide *N*, secured to the middle standard through which the bit is passed before entering the wood.

My machine is also applicable to the mortising of fellies or other curved stuff. When

used for this purpose two supports *O*, *O*, hinged to the back of the table are turned forward (see Fig. 5) and the felly is supported upon them, being prevented from rising by the adjustable stops while it may be firmly clamped against the standards by a clamp screw, *P*, passed through a standard, *R*, erected at the front of the table.

Another operation for which the machine is adapted is the formation of oblique mortises. When this operation is to be performed the standard *R* is removed and its place is supplied by another, *R'* Fig. 6, which supports the front extremity of the horizontal axis of an adjustable table *S*, its hinder extremity being received in a support, *v*, (Figs. 5 and 7) secured to the back of the table. A rod *w* is hinged to the adjustable table which passes downward through a hole made in the stationary table, to which it can be made fast by a clamp screw *x* thus securing the adjustable table at any angle of inclination required.

The machine is also applicable to the tenoning of the ends of spokes. When this operation is to be performed a rest, *y* Fig. 7, for the end of the spoke on which the tenon is to be made, is secured to the table, and the other end of the spoke is supported in any position required to give the proper level to the shoulders of the tenon by a pin passed through one of a series of holes made for the purpose in the outer standards *t*, of the table. A tenoning chisel, Fig. 4, is then applied to the mandrel, *H*, by which both sides of the tenon are cut at the same time. The rest, *y*, should be used whenever practicable, as it prevents the splintering of the stuff by supporting it close by the cutting edge of the chisel.

What I claim in the before described machine for mortising and tenoning as my invention and desire to secure by Letters Patent is—

The self centering chisel constructed substantially as herein set forth.

In testimony whereof I have hereto subscribed my name.

ELI K. WISELL.

Witnesses:

I. E. HEATH,
P. H. WATSON.