A. F. Cushman,

Hollow Auger.

No. 106,919. Patented Aug. 30, 1870.

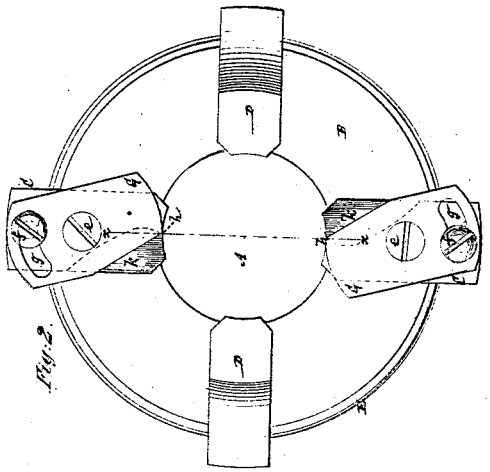

Fig. 2.

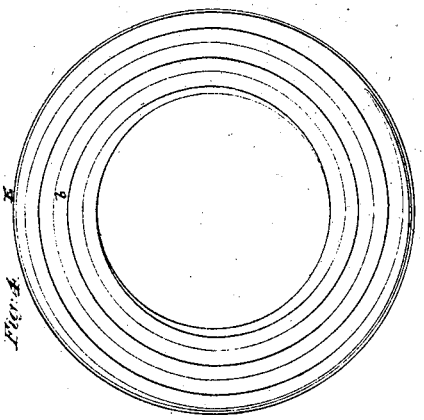

Fig. 4.

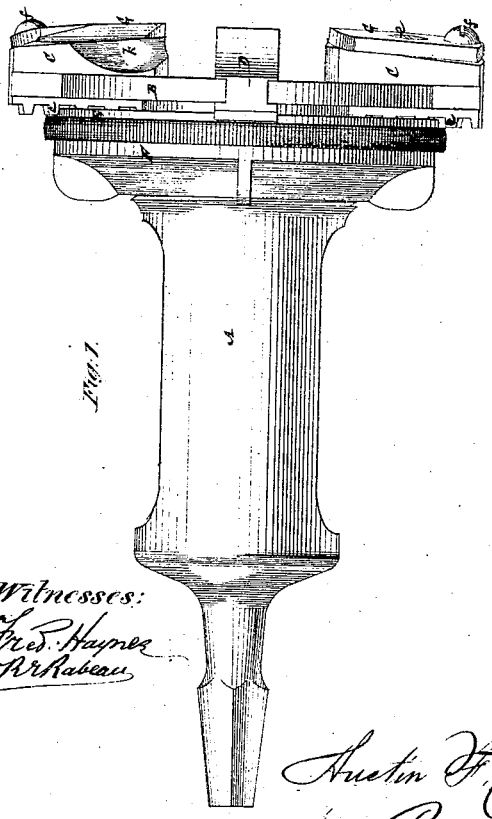

Fig. 1.

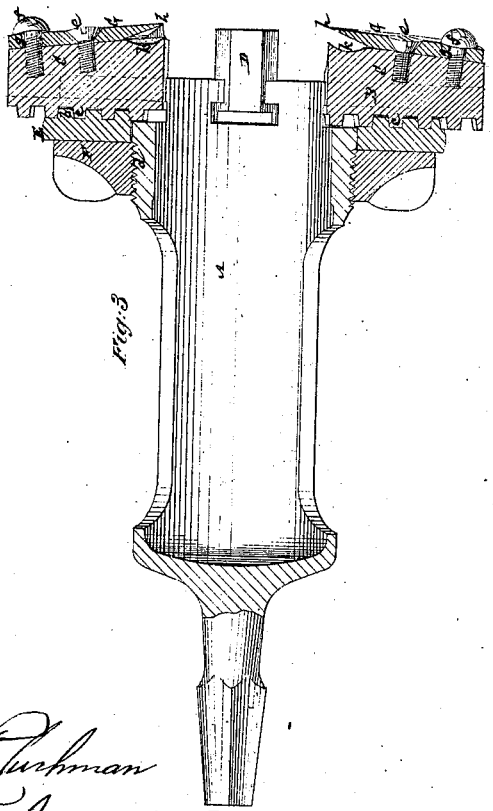

Fig. 3.

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AUSTIN F. CUSHMAN, OF HARTFORD, CONNECTICUT.

Letters Patent No. 106,919, *dated August* 30, 1870.

IMPROVEMENT IN HOLLOW AUGERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Bs it known that I, AUSTIN F. CUSHMAN of the city and county of Hartford, in the State of Connecticut, have invented a new and useful Improvement in Hollow Augers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a side or longitudinal view of a hollow auger constructed in accordance with my invention;

Figure 2, a face view of the same;

Figure 3, a longitudinal section of said auger; and

Figure 4 is a face view of a scroll used for adjusting the cutters to or from their work.

Similar letters of reference indicate corresponding parts.

My invention relates to an expanding or universal hollow auger, applicable to the cutting of round tenons and other work, and which embraces a peculiar attachment of the cutters by means of a screw-pivot and locking-screw, with slot, combined, to facilitate the setting of the cutters at their points relatively to the center of the auger.

A hollow auger, constructed in accordance with this invention, and which may be worked in a bit-stock or otherwise, will be found very convenient and efficient.

Referring to the accompanying drawing—

A represents the hollow spindle of the auger, which I prefer to cast in one piece, with an annular face-plate, B, in front.

This face-plate is slotted radially, to provide for the adjustment or setting in and out, therein or on, of the cutter-slides C C, and intermediate steadying-dogs, D D, to adapt the auger to different sizes of work, or to give to it its expanding or universal character.

Said face-plate may be provided with any number of such cutter-slides or holders and steadying-dogs, all of which are operated by an entire scroll or ring, E, having a continuous spiral thread, *b*, on its face, and which scroll is arranged to turn on the spindle A, at back of the face-plate B, and so that its thread *b* fits within pins or ridges *c c*, in or on the backs of the cutter-slides C C and dogs D D. By using an entire scroll, the adjustment of the cutter-slides and dogs may be made continuous and in reverse directions.

F is a screw clamping-ring, made to fit a screw-thread, *d*, on the spindle in rear of the scroll E, and serving to lock the scroll, and, through it, the cutter-slides and dogs, after the necessary adjustment of these devices has been made; also, to release them when required.

G G are the cutters, arranged on the faces of the slides C C, and being secured thereon, with facility for swiveling or adjusting them, by means of screw-pivots *e e*, in the centers or bodies of the cutters, and locking-screws, *f f*, arranged to pass through slots *g g*, outside of or beyond the screw-pivots.

This mode of attaching the cutters secures the proper centering of them, or provides for the adjustment of them after sharpening, and at other times, so that the cutting-points *h h* of two opposite cutters will lie in one and the same line, *x x*, drawn through the center of the auger, which is the proper position for the noses or cutting-points of the cutters, and which, by variation in shape of the cutters, consequent on sharpening them, makes it, otherwise than by the means described, difficult to secure.

It is preferred to make the faces of the cutter-slides slightly concave, and the backs of the cutters correspondingly convex, whereby, on tightening down the screw-pivots *e e*, a steady outside or edge bearing is secured for the cutters.

The cutter-slides C C are formed on their faces with clearance spaces or recesses, *k k*, beneath the front or cutting-edges of the cutters, to provide for the free escape of chips from or about the cutters.

What is here claimed, and desired to be secured by Letters Patent, is—

The cutters G, secured, as described, to the cutter-slides C, by means of the screw-pivots *e*, locking-screws *f*, and slots *g*, and arranged for operation in pairs or sets on opposite sides of the center of the spindle A, substantially as specified.

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Witnesses:

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