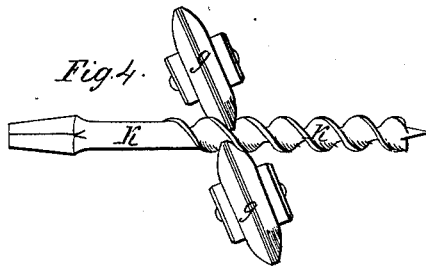
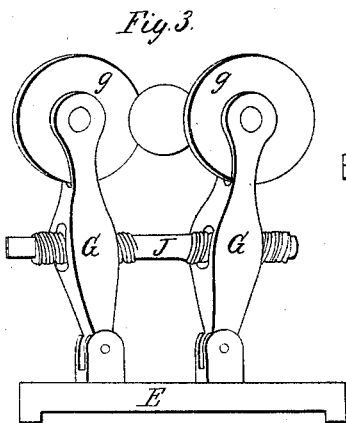
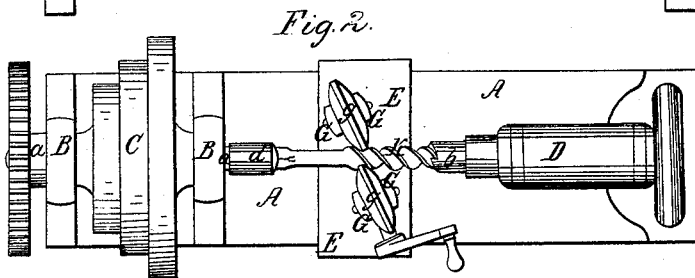
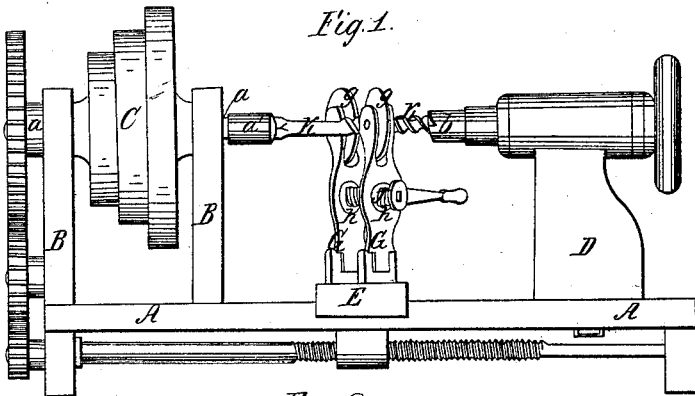


*Aldrich & Evans.*

*Making Augers.*

*N<sup>o</sup> 67,395.*

*Patented Aug. 6, 1867.*



*Witnesses;*  
*J. B. Campbell*  
*John Schaefer*

*Inventor;*  
*Willard L. Aldrich*  
*Wm Evans*  
*by their agents*  
*Mason, Fenwick & Lawrence*

# United States Patent Office.

WILLARD L. ALDRICH, OF NORWICH, AND WILLIAM EVANS, OF SEYMOUR,  
CONNECTICUT.

Letters Patent No. 67,395, dated August 6, 1867.

## IMPROVEMENT IN MACHINES FOR TWISTING AUGERS.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLARD L. ALDRICH, of Norwich, in the county of New London, and State of Connecticut, and WILLIAM EVANS, of Seymour, in New Haven county, State of Connecticut, have invented a Mode of Twisting Auger and Bit-Blanks; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the twisting and finishing devices.

Figure 2 is a top view of the same.

Figure 3 shows the devices for regulating the twist.

Figure 4 is a top view showing the rollers in the act of regulating the twist of an auger-bit.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to produce perfectly true grooves or twists in auger or bit-blanks by means of adjustable travelling-clamps or formers, which are moved in a direction with the length of a blank or twisted shaft during the rotation thereof, as will be hereinafter explained.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the bed of the machine, which is supported in a horizontal plane upon standards, and constructed with a vertical slot extending longitudinally through it, after the manner of constructing the well-known turning-lathe bed. Upon one end of this bed is the fast head-stock B, which supports the driving spindle *a* and its cone-pulley C; and near the opposite end of this bed A is the adjustable head-stock D, carrying the back-centre *b*, and the adjusting shaft to which this centre is applied. Between the fast head-stock B and the adjustable head-stock D is a slide-rest or saddle, E, which is designed for supporting the devices which impart regularity to the twist in auger or bit-blanks, after these blanks have been twisted between the two parts *a'* and *b*, as will be hereinafter explained. This slide-rest E should be so constructed as to move freely in a longitudinal direction upon the bed A, without being allowed to have any lateral play. The movement is imparted to this slide-rest by means of a horizontal leading-screw, F, which is supported in bearings beneath the bed A, and tapped through a projection formed on the bottom of said slide-rest. The screw-shaft receives its motion from the spindle *a*, through the medium of suitable gearing, in a manner similar to the construction of a screw-thread cutting-lathe. This gearing, which communicates motion from the driving-spindle to the leading-screw, should be so applied that it can be removed at pleasure and other wheels substituted, for varying the speed of the slide-rest according to the size of the bit or auger and the number of spiral turns required upon a given length of blank. Two standards G G are pivoted at their lower ends to the slide-rest E, and carry on their upper ends double convex rollers *g g*, which have their peripheries rounded, as shown in figs. 2 and 4, and which are arranged to rotate in different vertical planes, so as to adapt themselves to the spiral twist of an auger on both sides of it. The standards G G have oscillating nuts *h h* inserted in them, through which a shaft, J, passes, having right, and left-hand screw-threads cut upon it, as shown in fig. 3. Upon turning this screw-shaft, by means of a hand-wheel or crank, the rollers *g g* can be made to approach or recede from each other. The auger or bit-blank is constructed with that portion which is to be twisted of the proper thickness and width, and such blank is secured at its extremities by means of the clutch *a'* on the spindle *a* and the back-centre *b*. This back-centre *b* is bored out to receive and centre the spur on the blank, and its end is constructed with two half-spiral abutments for receiving and holding the cutting end of the auger before and after the latter is twisted. The blank being adjusted between the chuck and back-centre, the slide-rest is moved toward the adjustable head-stock to the proper point, and the rollers screwed up tightly to the blank near the back-centre *b*. The female or back-centre is then given a part of a turn, enough to twist and form the cutting ends. The blank is then twisted by turning the spindle in the proper direction, after which the slide-rest is thrown in gear, and the rolling-clamps moved along the twisted auger, so as to regulate and render the twist perfectly uniform. In practice provision will be made for stopping the movement of the carriage or slide-rest when the work of finishing the blanks by the rolling-clamps is complete.

It will be seen from the above description that the blanks are first twisted between the chuck and back-centre, after which the rolling-clamps or formers are adjusted so as to run in the spiral grooves, and thus render them even and uniform.

We do not confine our invention to the precise construction of the several parts herein described, as they may be modified as circumstances require without affecting the principle of operation of the invention.

What we claim as new, and desire to secure by Letters Patent, is—

1. Regulating the twist of augers and bits by means of the rollers *g g*, or their equivalents, arranged upon a slide-rest, and operating substantially as described.
2. The combination of end supports *a' b* with the regulating-clamps *g g*, substantially as described.
3. The construction of the female back-centre *b*, substantially as described.

W. L. ALDRICH,  
WILLIAM EVANS.

Witnesses:

H. B. MUNSON,  
FLORENCE CROWLEY.