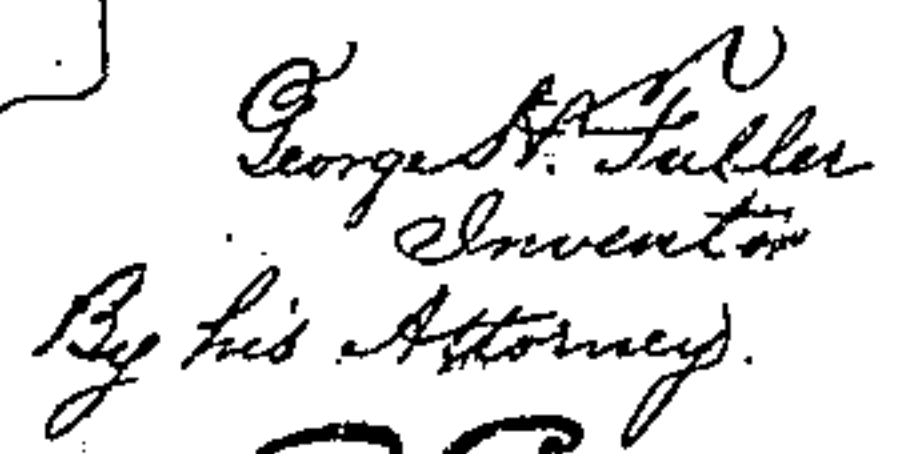


No. 114,664.

Patented May 9, 1871.



John E. Earle



# UNITED STATES PATENT OFFICE.

GEORGE H. FULLER, OF UNIONVILLE, ASSIGNOR TO HIMSELF, AUGUSTUS J. FULLER, OF SAME PLACE, AND ROSWELL A. NEALE AND AMZI P. PLANT, OF SOUTHTON, CONNECTICUT.

## IMPROVEMENT IN NUT-MACHINES.

Specification forming part of Letters Patent No. 114,664, dated May 9, 1871.

*To all whom it may concern:*

Be it known that I, GEORGE H. FULLER, of Unionville, in the county of Hartford and State of Connecticut, have invented a new Improvement in Machine for Making Nuts; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a top view; Fig. 2, a central section on line *xx*; Fig. 3, a transverse section; and in Fig. 4, a detached view.

This invention relates to an improvement in that class of machines for making nuts in which the sides of the nut are finished by a succession of blows, and especially in the machine patented to me February 16, 1869; and the invention consists in the combination of mechanism, as more fully hereafter described, for cutting the blank from the bar, crowning the face, and hammering the sides.

A is the bed-plate, upon which the operative mechanism is placed; B, the driving-shaft, arranged to revolve freely in bearings B<sup>1</sup> by the application of power to the pulley B<sup>2</sup> or otherwise.

The bar, having been heated, is introduced through the mouth C into the guide *c* in front of the slide D, which carries a punch, D<sup>1</sup>, (see Fig. 2,) the size and shape of the nut to be formed. This slide is operated by a cam, D<sup>2</sup>, on the driving-shaft, through the lever D<sup>3</sup>, to move longitudinally in the machine and across the guide *c*, where, striking the heated bar, as denoted in Fig. 4, the bar is pressed against the edge of the block or cutter D<sup>4</sup>, taking from the bar a blank from which to form the nut, and carrying it to and forcing it against the concave face of the crowner D<sup>5</sup>, as seen in Fig. 2, the face of the crowner being of the form desired for the face of the nut.

The crowner D<sup>5</sup> has arranged in its center a spring-spindle, *d*, to force the blank from the crowner when the punch D is removed. So soon as the blank has been thus acted upon the punch withdraws. At the same time the vertical slide E, operated by the cam E<sup>1</sup> through the lever E<sup>2</sup>, descends, its lower end being provided with a hammer, *e*.

The blank, by its own gravity dropping from the crowner onto a bar or anvil, *a*, is between the hammer *e* and the said bar or anvil *a*, and the projection 1 on the cam E<sup>1</sup> (may be several of them) imparts a blow or blows to the blank while in this position. Between the blows thus imparted a transverse blow is given by a hammer, *f*, fixed to a slide, F, operated by a cam, F', with projections 2, more or less in number, which, operating between the blows of the hammer *e*, give a transverse blow upon the other edges of the nut. After thus hammering, the nut is held in position until the punch *n*, fixed in the slide N, is advanced by the action of the cam N<sup>1</sup>, through the lever N<sup>2</sup>, piercing the nut, the metal punched from the nut passing out through the aperture *i*. This done and the punch *n* withdrawn, the anvil *a* is withdrawn from below the nut by the action of the cam P through the lever P<sup>1</sup> (denoted in broken lines, Fig. 1) and the slide P<sup>3</sup>. (See Fig. 3.) The nut then drops onto a slide or bar, R, and in that position is again struck upon its face by a slide or hammer, S, actuated by a cam, S<sup>1</sup>, through a lever, S<sup>2</sup>, (see Figs. 1 and 2,) which finishes the nut. Then the holder or bar R is withdrawn by a projection, *t*, on the side of the cam F' acting upon a lever, T, in connection with the said slide R, as seen in Figs. 1 and 2. At this time the parts have returned to receive a new blank from the bar for the formation of the second nut.

I claim as my invention—

1. In combination with the punch D<sup>1</sup> and crowner D<sup>5</sup>, the hammers *e f* and the movable anvil *a*, when arranged to operate upon the nut in the manner described, after it has been removed from the crowner, substantially as set forth.

2. In combination with the subject-matter of the first clause of claim, the punch *n*, operating to pierce the nut, as set forth.

3. In combination with the subject-matter of the second clause of claim, the finishing-hammer S and the slide R, as and for the purpose set forth.

GEORGE H. FULLER.

Witnesses:

A. J. TIBBITS,  
J. H. SHUMWAY.