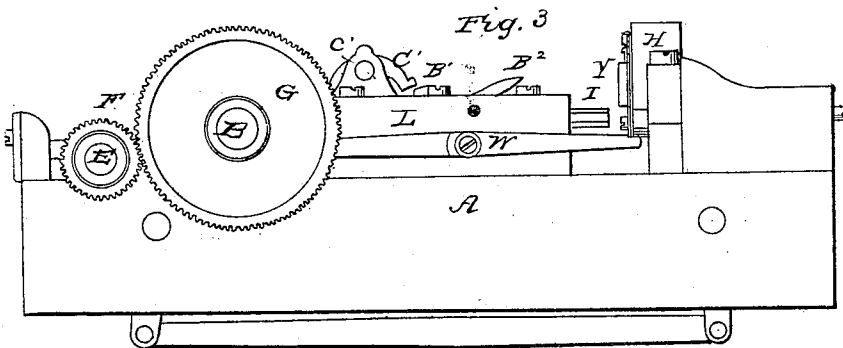
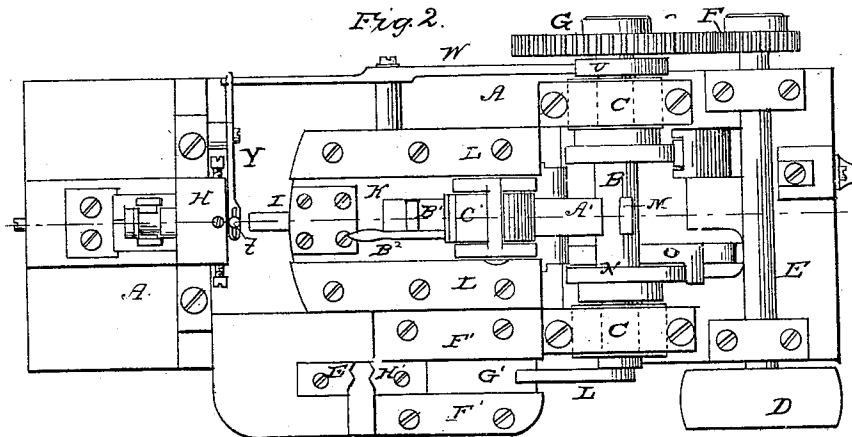
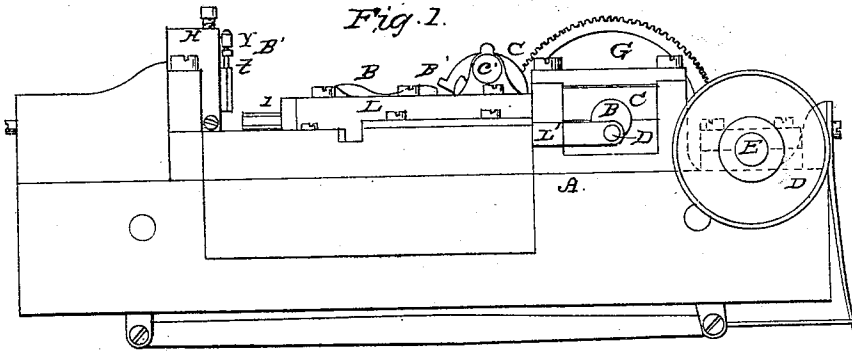


O. C. BURDICT.

Nut Machine.

No. 53,782.

Patented April 10, 1866.



Witnesses  
*Rufus H. Sanford*  
*H. B. Hatch.*

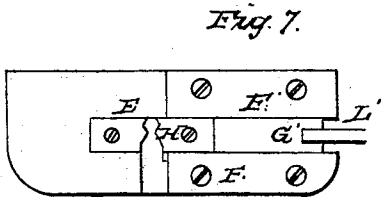
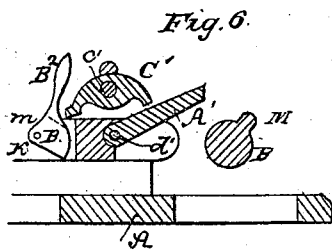
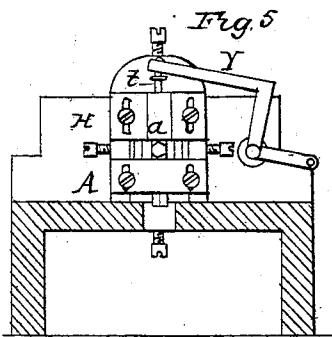
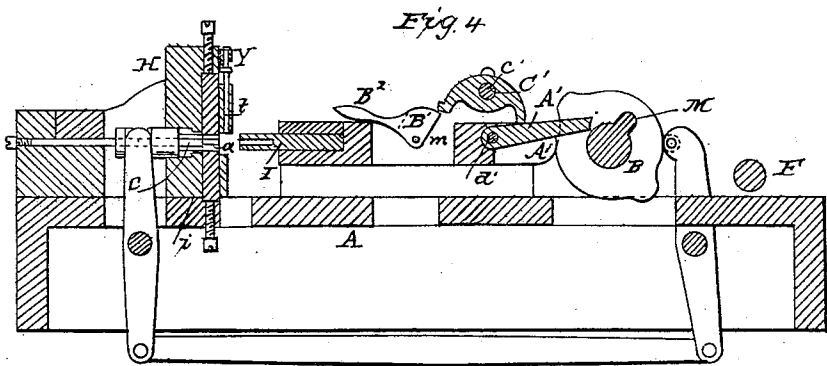
Inventor  
*O. C. Burdick*  
*By*  
*Shirley C. Burdick.*

O. C. BURDICT.

Nut Machine.

No. 53,782.

Patented April 10, 1866.



witnesses  
Rufus Sanford.  
A. P. Hatch

Inventor  
O. C. Burdick.  
By  
John C. Early

# UNITED STATES PATENT OFFICE.

ORRIN C. BURDICT, OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN NUT-MACHINES.

Specification forming part of Letters Patent No. 53,782, dated April 10, 1866.

*To all whom it may concern:*

Be it known that I, ORRIN C. BURDICT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Nut-Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front-side view; Fig. 2, a top view; Fig. 3, a back-side view; Fig. 4, a section cutting through O O; Fig. 5, a face view of the dies to illustrate my first improvement; Fig. 6, a detached view to illustrate my second improvement, and in Fig. 7 a detached view to illustrate my third improvement.

My invention relates to an improvement in the machines for making hot-pressed nuts for which Letters Patent were granted to me, dated the 8th day of December, 1863.

To enable others skilled in the art to construct and use my improved machine, I will proceed to fully describe the same, as illustrated in the accompanying drawings.

A is the bed-plate; B, the driving-shaft, supported and revolving in bearings *c*, and is caused to revolve by the application of power to a pulley, D, on a shaft, E, which communicates with the shaft B through gears F and G. H is the die-holder in which the nut is formed; I, the punch which presses the nut into the die and is fixed in a slide, K, which moves forward in proper grades L L by the action of the cam M on the shaft B, and back by the action of the cam N on the said shaft B against an arm, O, extending out from the slide K, as seen in Fig. 2. Within the die-holder H a die, *a*, (see Figs. 4 and 5,) is placed, which may be of any desirable construction. I represent a die constructed of several parts, invented by me and patented—day of—

*d* is a punch placed centrally through the die for the purpose of punching the hole through the nut, the punch I being constructed with a hole, *e*, in its center, (see Fig. 4,) corresponding to the punch *d*, so that when the punch I enters the die, carrying before it the hot metal from which the nut is formed, the punch *d* will force the central portion of the

nut into the hole *e* in the punch I. Around the said punch *d* is placed a sleeve, *c*, which forms the bottom of the die and is movable by the action of the cam P through levers R and S, connected by a rod, T, in like manner, as fully described in the patent granted to me January 5, 1864.

The operation of my machine as thus far described is fully set forth in my said patent of December 8, 1863.

One of the difficulties which I have experienced in that machine has arisen from the tendency of the nut, after it is finished, to cling to the sleeve *c* when forced from the die by the said sleeve. This difficulty I overcome by means of a tappet, *t*, (see Fig. 4,) operated by a cam, U, through levers W and Y, (see Figs. 2 and 5,) so that when the nut is forced from the die by the outward movement of the sleeve *c* the tappet *t* is forced down against the nut to detach it from the sleeve whenever it clings thereto. This constitutes my first improvement.

Another difficulty which I have experienced in the operation of my machine has arisen from the impossibility of instantaneously stopping its operation, the momentum being sufficient to continue the movement of the parts after the power is disengaged. The part which requires to be thus stopped is the slide K, which carries the punch I.

My arrangement for overcoming this difficulty is fully shown in Figs. 4 and 6. I hinge a bar, A', to the slide K at *d'*, so that when resting in the position seen in Fig. 4 the cam M will strike the said bar and force the slide forward; but when raised, as seen in Fig. 5, the cam M will revolve without moving the slide.

To operate the said bar to connect or disconnect the power, I arrange on the slide K a cam, B', to turn upon a pivot, *m*, by means of a handle, B<sup>2</sup>, or otherwise. Between the cam B' and the bar A', I hang a lever, C', upon a pivot, *c'*, so that when the cam B' is turned, as seen in Fig. 4, it will press down the bar A' to receive the action of the cam M, or when the cam B' is turned to the position seen in Fig. 6 the bar A' will be raised, as seen in said Fig. 6, either by the action of a spring or by its connection with the lever and cam. By

this arrangement the movement of the slide may be instantaneously stopped at the pleasure of the operator, the cam N always returning the slide to its most distant position from the die, and the object of my second improvement is realized.

My third improvement relates to the manufacture of hexagonal nuts, and is illustrated in Figs. 2 and 7.

If hexagonal nuts are punched from square bars, a large portion of the metal is lost in forming the angles. To avoid such loss I fix upon the front side of my machine a die, E', and in proper guides F' a slide, G', with a corresponding die, H', attached. The slide G' is moved by a crank or eccentric, I', on the shaft B, through a connecting-rod, L', so that as the shaft revolves the said slide will be moved to and from the fixed die E'. Between the two dies E' and H', I place the hot bar of metal, which, operating as described, forms the angles of the hexagonal nut to be produced. I then

place the part thus formed before the die a, when the punch I, advancing, cuts the formed end from the bar, carries it into the die a, and completes the nut without the usual loss of metal.

Having, therefore, thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. The combination of the dies E' and H', as preliminary shaping-dies, when the said dies are combined with the herein-described nut-machine, so as to accomplish the preliminary shaping before the bar so shaped is presented in front of the die-box.

2. The combination of the hinged bar A', cam B', and vibrating lever C, for the purpose of arresting the movement of the slide K without disconnecting the power from the machine.

ORRIN C. BURDICT.

Witnesses:

JOHN E. EARLE,  
H. D. HATCH.