O. C. BURDICT.

Nut Machine.

No. 40,815. Patented Dec. 8, 1863.

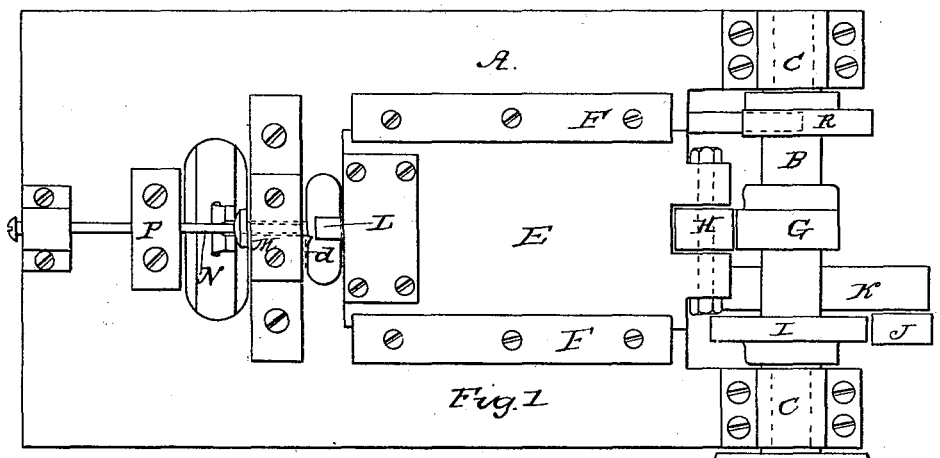


Fig. 1

Fig. 2

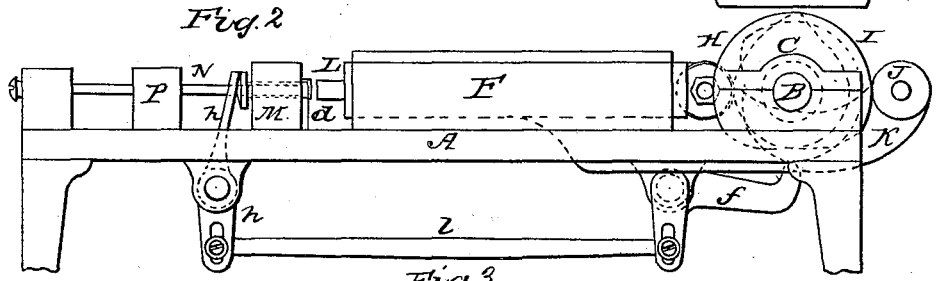
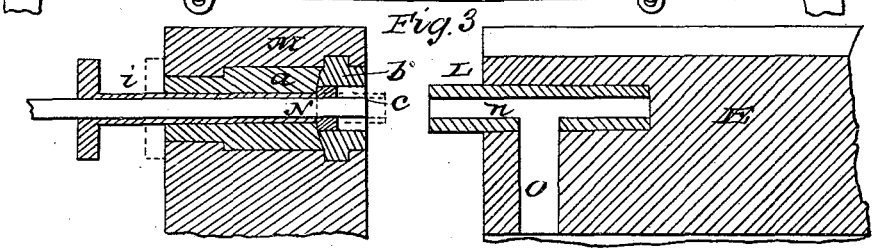


Fig. 3



Witnesses

John C. Earle.

Rufus Sanford.

Inventor

Orrin C. Burdict

UNITED STATES PATENT OFFICE.

ORRIN C. BURDICT, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR MAKING NUTS.

Specification forming part of Letters Patent No. **40,815**, dated December 8, 1863.

To all whom it may concern:

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

Figure 1, a plan or top view of my machine; Fig. 2, a side view of the same, and in Fig. 3 a longitudinal section of the working parts enlarged to better illustrate my improvements.

Similar letters and characters in the several drawings indicate like parts.

To enable others skilled in the art to make and use my improved nut-machine, I will proceed to describe its construction and operation.

A is the bed-plate; B, the driving-shaft, supported in bearings C, and driven through the application of power to the pulley D.

E is a slide supported by and moving freely in guides F, is moved forward by the cam G on the shaft B, bearing against a roll, H, on the said slide, and is drawn back by the action of the cam I, bearing against the roll J, which is attached to the slide E by a projection, K, therefrom.

L is a punch the form and size of the nut to be made, and is firmly fixed in and moves with the slide E.

M is a block fixed to or a part of the bed-plate. In the said block I place a die made in two parts, *a* and *b*. (See Fig. 3.) The part *a* is made concave on its inner end, and the part *b* made convex to set into and fit the concavity in the part *a*, as clearly shown in Fig. 3. The part *b* is made with a hole, *c*, the size and form required for the nut to be made, and must correspond to the form and size of the punch L. The concavity in the part *a* is made to make the face of the nut "oval." *d* is a cutter, against which the blanks are cut from a heated bar to form the nuts.

N is a fixed punch placed centrally through the die and secured in the block P, and of the diameter required for the hole in the nut. A hole, *n*, is made centrally through the punch L the size of the punch N, and into which the punchings of the nut pass thence out through a conductor, O.

i is a sleeve surrounding the punch N, and fitted to move freely thereon and through the die, and is employed, as hereinafter described, to support the blank in its proper position while being cut from the bar, and also to throw out the nut after it is swaged.

To operate my machine, apply power to drive the shaft B. Place a bar of iron heated to a welding heat before the die and against the cutter *d*. The sleeve *i* must extend out to the cutter, so that the end of the bar to be cut off will rest on the sleeve *i*, and the said sleeve is held firmly in that position by the cam R, through the levers *f* and *h* and their connections *l*. The cam R is shown in red, Fig. 2. The punch L now moves forward by the action of the cam G, as aforesaid, and as soon as the punch L reaches the bar and begins to press upon it, the sleeve *i* retreats as fast as the punch L advances. This result is accomplished by making the action of the two cams G and R simultaneous. By this operation the blank, being cut from the bar, is sustained and firmly held between the punch L and sleeve *i*. After the blank is cut from the bar and still held, as aforesaid, it is carried into the die against the punch N, which punches the eye of the nut, and thence the blank is carried onto the bottom of the die. Here the sleeve *i* rests, and the punch L swages the nut to the form of the die. Instantly this is done the punch L retreats by the action of the cam J, as before described, and at the same time the sleeve *i* advances by a corresponding action of the cam R, and forces the finished nut from the die. A second is cut, punched, and swaged in like manner as the first, and so on.

The advantages of my machine over other nut-machines are, first, by making the die in two parts, as described, the part *a* serves for many sizes of nuts, it being only required to change the part *b* for each different size or form of nut—that is, to a certain extent. This part *b*, I make round, whereby I am enabled to make it in a lathe, (the cheapest form possible,) and have simply to make a hole the required form and size entirely through it, and for different sizes and forms have only to change this part of the die and punches to correspond, all of which requires very little time. Another great ad-

vantage is the operation of the sleeve *i* to hold the blank as described. It prevents the blank from turning, and insures its entrance squarely into the die.

Having thus fully described the construction and operation of my machine and its peculiar advantages over other similar machines, what I claim thereon as new and useful, and desire to secure by Letters Patent, is—

1. A die constructed, as described, in two parts, *a* and *b*, and the said two parts combined with a movable punch, L, and a fixed punch, N, to operate in the manner and for the purpose specified.

2. The combination of the sleeve *i* and punches L and N, when the same are arranged in the manner described, and combined with a die constructed as and for the purpose specified.

ORRIN C. BURDICT.

Witnesses:
JOHN E. EARLE,
RUFUS SANFORD.