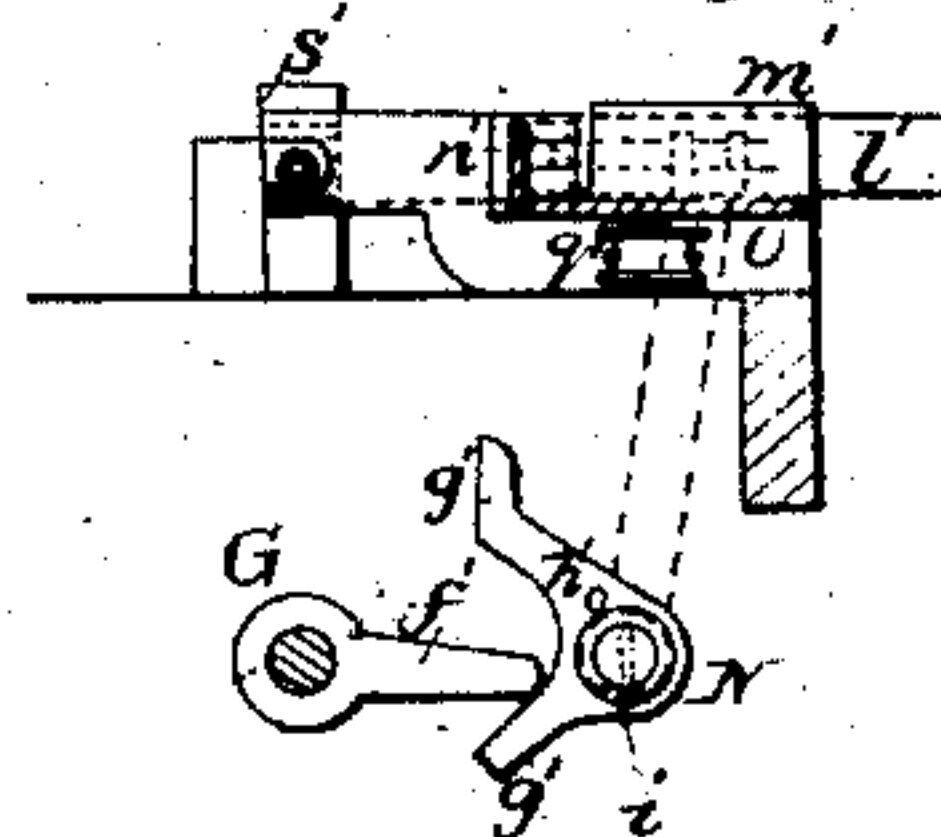
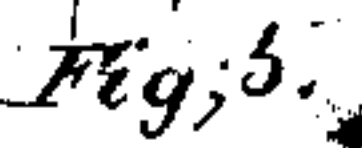
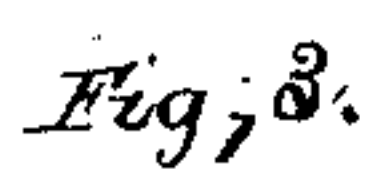


Patented Jul. 7, 1857.

Fig; 2.



UNITED STATES PATENT OFFICE.

ALMON B. GLOVER, OF BIRMINGHAM, CONNECTICUT.

MACHINE FOR TAPPING NUTS.

Specification of Letters Patent No. 17,734, dated July 7, 1857.

To all whom it may concern:

Be it known that I, ALMON B. GLOVER, of Birmingham, in the county of New Haven and State of Connecticut, have invented a new and Improved Machine for Tapping Nuts; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improvement; x, x , Fig. 3, indicating the plane of section. Fig. 2 is an end view of ditto. Fig. 3 is a plan or top view of ditto. Fig. 4 is a detached plan or top view of the device by which the motion of the arbor is reversed. Fig. 5 is a detached view of the device employed for feeding the blanks into the tap box.

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

This invention relates to a new and improved machine for tapping nuts, wherein the tap is fed to the blanks automatically and also due provision made for any irregularity in the operation of the tap, or the device which feeds the blanks to the same.

The invention consists in the peculiar means employed for effecting the purpose above mentioned.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a framing on the upper part of which a socket B is placed, said socket being fitted in a suitable bearing (a).

B^1 represents a mandrel or arbor, the inner end of which is fitted in the socket B, and is made to turn therewith by means of a pin (b), which passes transversely through the mandrel or arbor and fits in a slot made in the end of the socket. On the arbor B^1 , a shoulder or collar (c), is permanently secured, and a sleeve (d) is placed loosely on the arbor B^1 , said sleeve having a spiral spring (e) placed within it. One end of this spring (e) bears against a pin (f), which passes through the arbor B, the ends of said pin fitting in slots (g) in the sleeve (d).

The outer end of the arbor B^1 has a tap C secured in it. The socket B has a toothed wheel (i) on it, the wheel (i) being on the outer end of the socket B.

D represents a shaft which is placed transversely on one end of the upper part of the framing A. A driving pulley E is placed on

one end of this shaft D, and two beveled wheels F, F, are placed loosely on the shaft D. On the shaft D there is also placed loosely a collar (j), the center portion of which has a groove (k) made in it circumferentially, said groove having a fork (l) fitted in it.

The ends of the collar (j) have pins (m) secured in them, two pins at each side and two pins (n) are also secured in the inner side of each wheel F. The collar (j) is secured on the shaft D by means of a feather and groove so that said collar is made to turn with the shaft and at the same time allowed to slide on it.

G is a shaft which is placed in the framing A, below the arbor B, and in the same plane. This shaft G, has a bow shaped bar H, placed loosely on it, and one end of the bar H, has a projection (i) attached to it; said projection being provided with a pin (p), which is fitted in a special groove (q), in a collar (r), on the shaft G. The end (s) of the collar (r), adjoining the end of the bar H is made inclined or oblique with its axis and the end (t), of the bar H, which adjoins it is of corresponding form as shown clearly in Fig. 1. The bar H has a vertical rod I attached to it and the arbor B^1 passes through the upper end of said rod the rod I being between the shoulder or collar (c), and the sleeve (d).

The socket B, is connected by means of gearing (1), (2), (3), (4), with a shaft J, the outer end of which has a pinion (u), on it. This pinion (u) gears into a toothed wheel K, which is placed on the outer end of the shaft G. The wheel K, has a segment slot (v), made through it near its periphery and a pin or projection (w), is fitted in said slot (v). This pin or projection is rendered adjustable, that is, may be moved and secured at any desired point within the slot (v). A pin or projection (w^1) is permanently secured at one end of the slot (v).

The fork (l) which is fitted in the groove (k) is attached to the upper end of a bar L, the lower end of which is fitted and allowed to work or turn on a projecting rod (z), attached to the framing.

To each side of the bar L a spring (a^1) is attached and a horizontal bar M is attached to the framing A, just below the shaft D, the bar being parallel with said shaft. On this bar M, two arms or bars (b^1), (b^1), are pivoted as shown at (c^1), (c^1). Each arm or bar (b^1), has a notch (d^1), made in it, and the bar L,

catches alternately into these notches as will be presently shown. The arms or bars (b^1), have a spring (c), bearing against their outer sides as shown clearly in Fig. 4.

5 On the inner end of the shaft G a tappet (f^1) is placed, and in the framing A a shaft N is placed, said shaft having two arms (g^1), (g^1) on it at its end, the arms (g^1), projecting from the shaft in the form of a fork. The
10 tappet (f^1), actuating them alternately. The arms (g^1), have one end of a spiral spring (h^1) attached to them, the opposite end of said spring being attached to the shaft N. The arms (g^1), are constructed at their inner ends
15 and are placed loosely on the shaft N, a pin (i), preventing the arms from turning or moving on the shaft in one direction, and the spring (h^1), preventing them from turning in the other direction.

20 On the outer end of the shaft N, an arm (j^1), is attached. The upper end of this arm is slotted and a pin (k^1), which is attached to a slide (l^1), fits in said slot. The slide (l^1) works in a socket (m^1), which is attached
25 transversely to the end of a feed board O, on the framing A.

The inner edge of the feed board O, has a vertical ledge (n^1), attached to it, on which a follower (o^1), is fitted and allowed to slide
30 freely thereon. The follower is merely a rectangular bar fitted in any proper manner on the ledge (n^1), a string (p^1) is attached to the under side of the follower, and this string passes over pulleys (q^1), and has a weight (r^1)
35 attached to it. To the end of the feed board O, and in line with the slide (l^1), a trough or box (s^1), is placed.

The operation is as follows: The blanks shown in red in Figs. 1, 3, and 5, are placed
40 on the feed board O, and the follower (o^1) is drawn back and allowed to bear against the end blank. Several rows of blanks may be placed on the feed board O, a bar or plate
45 (u^1), dividing the row adjoining the ledge (n^1), from the others. Motion is given the driven pulley E, in any proper manner and the two wheels F, F, are connected alternately with the shaft D, by means of the
50 sliding collar (j), which is operated by the bar L, the bar L being vibrated by the projection (w), (w^1), in the slot (v), in the wheel K. This alternate connection of the
55 wheels F, with the shaft D, gives a rotating reciprocating motion to the arbor B^1 , and shaft G. Each time the arbor B^1 , is moved from left to right the arbor is moved forward in the direction indicated by the
60 arrow 1¹, by means of the oblique end (s), of the collar (r), which is in fact a cam. The tap C, is fed to its work during this forward movement of the arbor B^1 , a blank being shoved into the tap box (s^1) by the
65 slide (l^1), just previous to the forward movement of the arbor and the tap passes through a hole in the blank and cuts the

thread. When the arbor B^1 , turns in the reverse direction, viz, from right to left, the arbor B^1 will be moved backward in the direction indicated by arrow 2, in consequence of the pin (p), on the projection (o),
70 fitting in the spiral groove (g), and the tap is moved back. The slide (l) is operated at the proper time back and forth by means of the tappet (f^1) acting alternately against
75 the arms (g^1), (g^1), and the blanks are fed in front of the slide (l^1), by the follower (o^1). Each time a blank is fed into the box (o^1), a finished nut is forced out. In case these should be any irregularity in the feeding of
80 the blanks within the tap box (s^1), and the forward movement of the arbor B^1 should be opposed thereby, the spring (e) within the sleeve (d) will yield or give so that the
85 sleeve (d) will be moved instead of the arbor B^1 , therefore preventing the arbor or any of the parts connected therewith from being subjected to any undue strain on account
90 of the obstruction. A like provision is also made for the device by which the blanks are fed into the tap box for in case the movement of the slide (l^1), is obstructed or
95 opposed the spring (h^1) will yield or give and allow the arms (g^1) a requisite degree of movement independent of the shaft N.

From the above description of parts it
100 will be seen that the arbor B^1 , has a rotating, reciprocating motion given it the tap C, fed to its work while turning from left to right, and moved back while turning in the reverse
105 direction, and the blanks fed into the tap box (s^1), in front of the tap by the movement of the pulley E, the several parts being operated automatically.

Having thus described my invention, what I claim as new, and desire to secure
110 by Letters Patent, is:

1. I claim giving the arbor B^1 , simultaneously with its reciprocating rotary motion, a longitudinal movement back and forth, by means of the collar (r), placed on
115 the shaft G, and provided with the spiral groove (g), and inclined or oblique end (s), and the bar H, which is placed loosely on the shaft G, and connected with said collar as described.

2. I claim the employment or use of the spring (e), placed within the sleeve (d), and the spring (n^1) placed on the shaft N, and connected with the arms (g^1), (g^1), for the purpose of allowing the arbor B^1 , and
120 arms (g^1), (g^1), an independent movement and thereby preventing any injury which might otherwise be produced by any irregularity in the feeding of the blanks within the tap box.

ALMON B. GLOVER.

Witnesses:

JOSEPH P. CANFIELD,
SIDNEY A. DOWNES.