G. H. Fuller.

Net Machine.

No. 86,914. Patented Feb. 16, 1869.

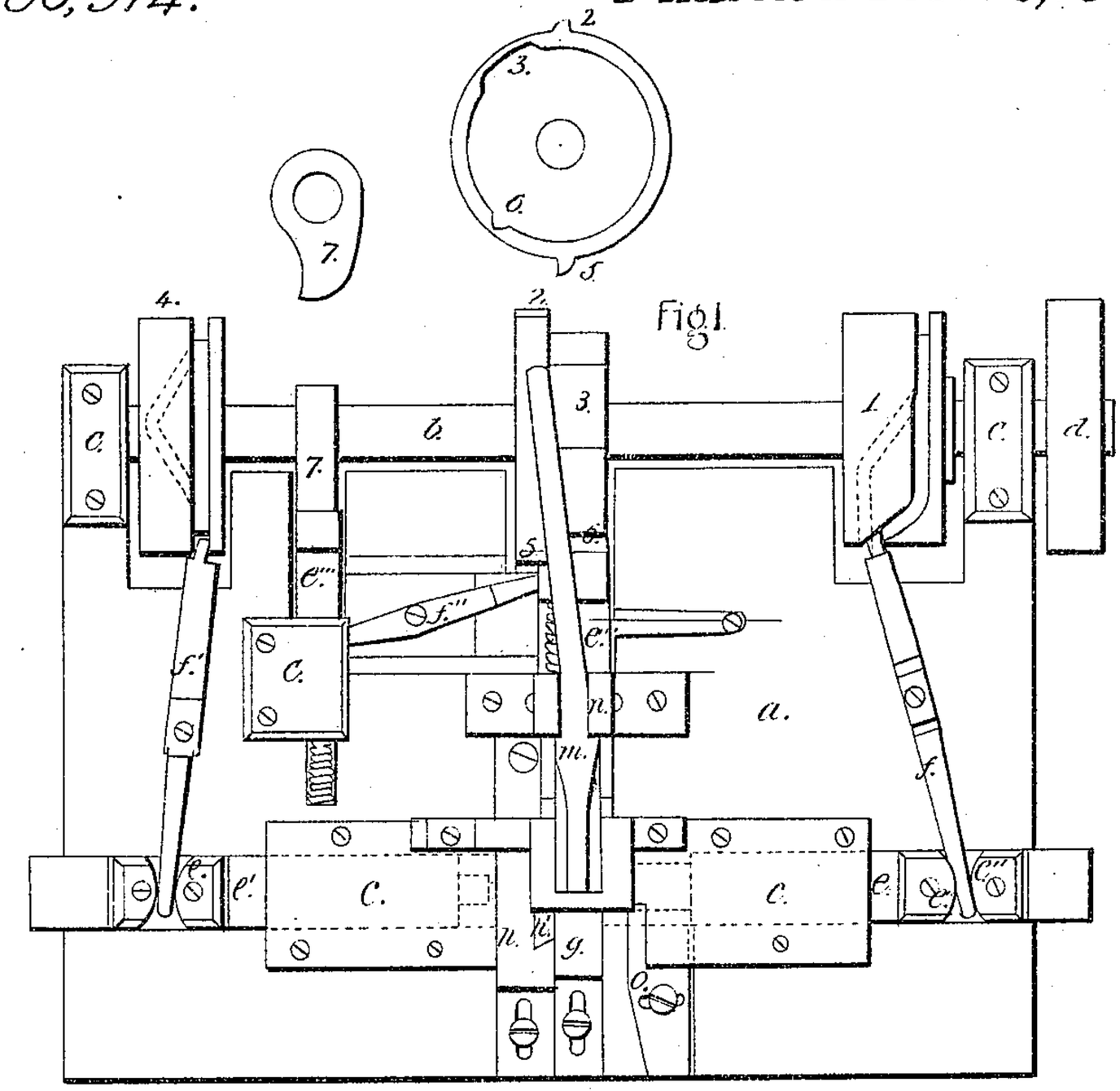


Fig. 1.

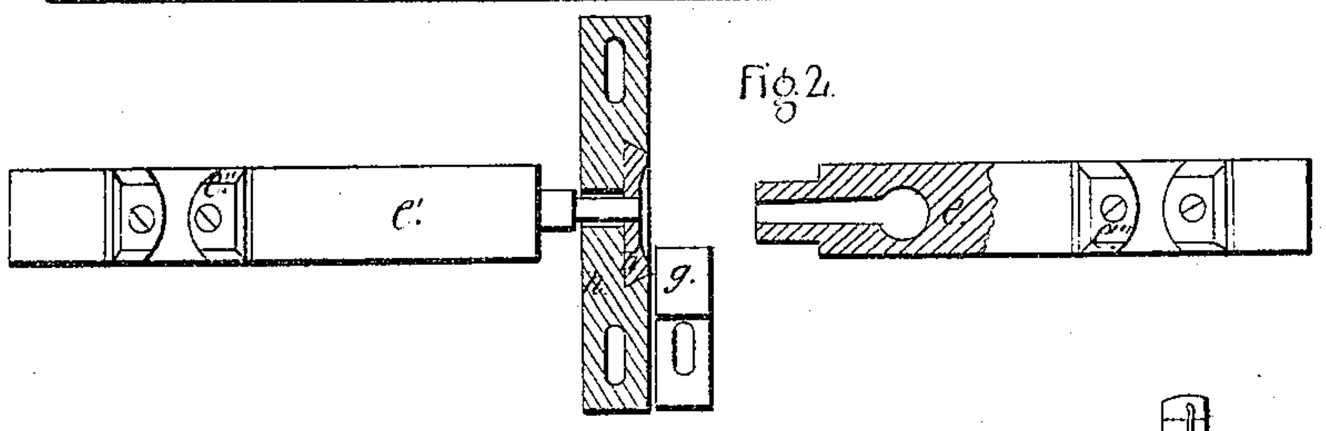


Fig. 2.

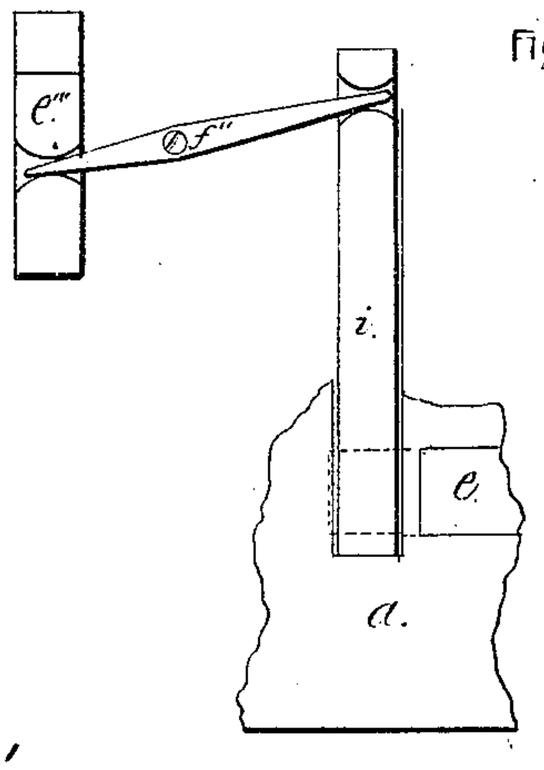
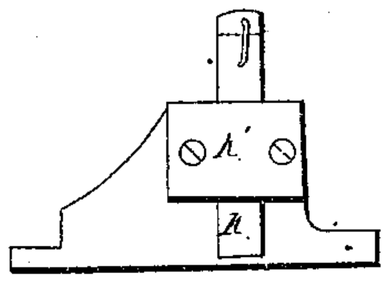


Fig. 3.



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GEORGE H. FULLER, OF UNIONVILLE, CONNECTICUT.*

Letter's Patent No. 86,914, *dated February* 16, 1869.

IMPROVEMENT IN MACHINES FOR MAKING NUTS.

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

To all whom it may concern:

Be it known that I, GEORGE H. FULLER, of Unionville, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Nut-Machines; and to enable others skilled in the art to make and use the same, I will proceed to describe its construction and operation, by referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this invention consists in cutting off the blank for a nut, and shaping, hammering, and punching, without moving its position from the point where it was cut from the bar, until completed ready to deliver from the machine.

It further consists in so constructing the shear-bar, that it will perform the office of shear to cut the nut-blank from the bar; pusher, to push it forward to shape or basil the blank; holder, to hold it while being hammered; and a die, for punching it and holding it in readiness to receive the punch.

It consists of a bottom slide-plate, which forms one side of compression-box, in which the nut is shaped, and by which it is partially held in place while being completed, and then removed to allow the finished nut to drop from the machine.

It further consists in so arranging the mechanism that one shaft will impart impetus to the whole machine.

The object of this invention is to simplify and cheapen the manufacture of the machine, to complete the nut in the least possible time, and while the iron is in a proper heated state, and to do so without changing the position of the blank until finished.

In the accompanying drawings—

Figure 1 is a plan view.

Figures 2 and 3 are detached portions of the machine.

a is the bed-plate, in which are formed depressions, grooves, supports, and bearings.

It is designed, in practice, to have all and every portion of the bed-plate, (including standards, supports, &c.,) made of one piece of metal, excepting only the caps which cover the shaft-bearings, slides, openings, &c.

b is the operating-shaft, secured in bearings directly under the caps *c*.

d is the driving-pulley, secured upon the outer end of the shaft *b*.

1, 2, 3, 4, 5, 6, 7, are cams arranged upon the shaft *a*.

The cam 1 is arranged and secured upon or near the right-hand end of the shaft, and is made cylindrical in form, and having an irregular or zigzag groove, or path, to receive the end of a lever, *f*.

The cams 3, 6, and 2, 5, are or may be made in one or two pieces, in the form of a cylinder, and secured together upon and nearly in the centre of the shaft *b*.

These cam-projections may be made on, or afterward secured to the cylinder, in their relative position with each other, so as to produce the harmonious action of the relative parts operated thereby.

Cam 7 is a surface-cam, located upon and near the left-hand end of the shaft.

Cam 4 is arranged and secured upon and near the left-hand end of the shaft, and is of a cylindrical form, having an irregular or zigzag groove, or path, to receive the end of a lever, *f'*.

These cams are respectively numbered in the order in which they work.

e is a shear-bar, fitted into a groove, flush (or nearly so) with the upper surface of the machine. The front end of this bar is made to serve the purpose of shear and pusher, to form the basil of the nut, and a die for punching the eye of the nut.

e'' is a box, in which one end of the lever *f*, secured by a pin, or bolt, to the bed-plate, works, to actuate the bar *e*. This box is made adjustable, to adjust the shear-bar to the die.

g is an anvil-block and shear-die, fitted into a groove formed in the bed-piece, in a line at right angle with the shear or cutter-bar *e*, and is adjusted and secured firmly in its position by means of keys, or bolts, so that one edge thereof shall serve, in conjunction with one edge of the front end of the shear-bar *e*, to shear or cut a nut-blank from a bar.

h is a stock, in which is secured a basil-die, *h'*, for shaping the upper side of the nut, having an orifice through which a punch works, to punch the nut.

Thus it will be seen that this die *h'* serves the two-fold purpose of basilling the nut, and clearing the nut from the punch, after having been punched.

e' is a punch-bar, having a punch in the front end, which works through the die *h'* into the die formed in the end of the bar *e*.

This bar *e'* is fitted into a groove or depression in the bed-plate, flush (or nearly so) with the surface.

This punch-bar is operated, through the lever *f'*, secured by bolt or pin to the bed-plate, by means of the cam 4.

The punch-bar *e'*, or die in the end thereof, is provided with an orifice in the under side of the bar or die intersecting with the die-orifice, to allow the waste metal to escape from the back side of the die.

e'''' is a hammer, or press-bar, arranged in a depression formed in the bed-plate, and works towards the face of the anvil-block *g*, to compress two sides of the nut, and is actuated by the cams 3 and 6. The cam 6 acts to hammer or compress the edge of the nut, the other, 3, to hold the nut till the punch commences to enter it.

i is a reciprocating plate, fitted into a groove, and rebates formed around the three sides of the opening in the bed-plate underlying the bar *e''''*, through which the nut, when finished, drops from the machine, which plate *i*, by the joint action of the lever *f'''*, reacting-spring, and cam 7, with or without the slide *e'''*, first forms a firm bed, upon which one edge of the blank is

* Assignor to himself & Augustus J. Fuller of the same place.

firmly held while being hammered or compressed, after which, or when the nut is finished, moves back; and the nut falls through the opening and out of the machine, and makes room for the next blank.

k is a perpendicular hammer, or press-bar, secured and working in the box *k'*, directly over the upper edge of the nut-blank.

This bar is actuated by a lever, *m*, secured in a support, *n*, and cams 2 and 5: first, by the cam 2, to hammer or press the side of the nut between it and the anvil; second, by the cam 5, to push the nut down out of the machine.

o is a guide for the bar while being introduced into the machine.

c are caps to cover bearings, slide-bars, and openings.

I have thus endeavored to show the nature of my invention, and its construction, and in doing so, also to show its operation.

The advantages to be derived from this invention are its simplicity, cheapness of construction, and more rapid execution.

What I claim, therefore, and desire to secure by Letters Patent, is—

1. The arrangement of the sliding bottom *i*, horizontal-edge swage *e'''*, and the mechanism by which they are respectively operated, at the times and in the manner described.

2. The arrangement of the cams 1, 3, 6, 2, 5, 7, and 4, upon the shaft *b*, bar *e*, anvil *g*, die *h'*, punch-bar *e'*, hammer *k*, bar *e''*, and plate *i*, with their intermediate levers, substantially as described.

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