S. H. Whitaker.

Nut Machine.

No. 21,860. Patented Oct. 19, 1858.

Fig. 2.

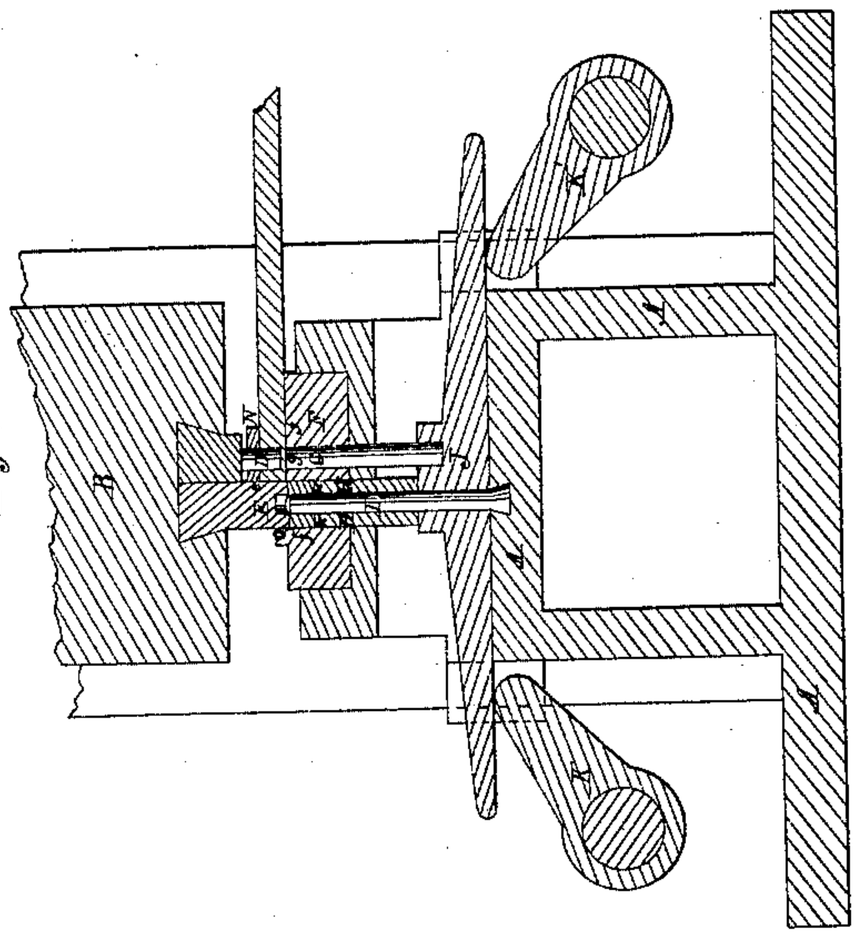


Fig. 4.

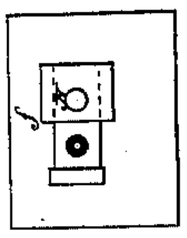
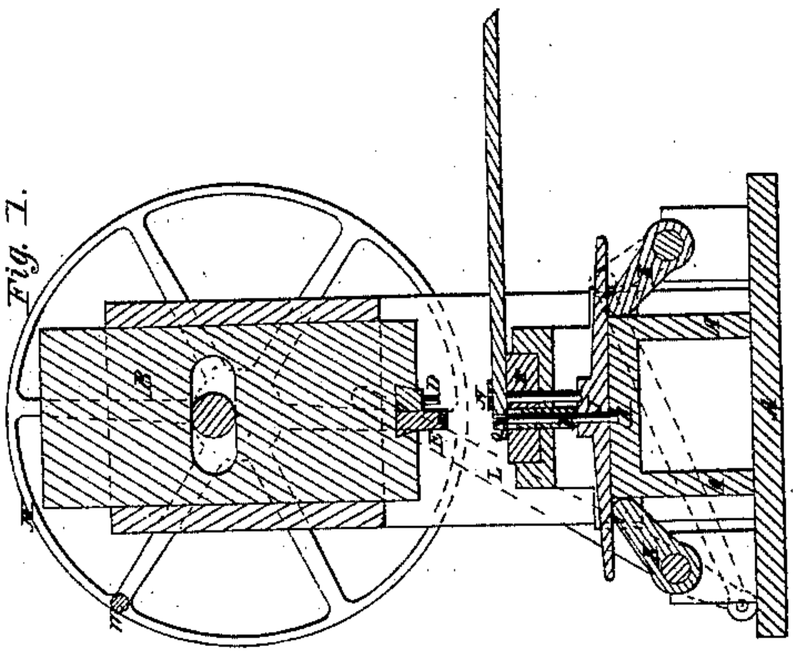


Fig. 3.

Fig. 1.



UNITED STATES PATENT OFFICE.

S. H. WHITAKER, OF CINCINNATI, OHIO.

NUT-MACHINE.

Specification of Letters Patent No. 21,860, dated October 19, 1858.

To all whom it may concern:

Be it known that I, SAMUEL H. WHITAKER, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Nut-Machines; and I hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

This invention relates to a provision for making metallic nuts with the least practicable waste, most of the "core" or punching being incorporated in the substance of the bar or nut.

In the accompanying drawings Figures 1, 2 and 3 are vertical axial sections representing successive stages of the operation. Fig. 4 is a top view of the die bed.

A, is a frame for supporting and guiding the various working parts.

B, is a slide reciprocated vertically by a crank C, and carrying at bottom a punch D, and die E. The die E, has a cutting edge at *e'*, and when the said die is depressed its front side *e*, constitutes the rear wall of the preparatory die box hereafter described. Confined by a die bed F, to operate in a line with the aforesaid punch and die respectively are a counter punch G, and a counter die H. When at rest the top *g*, of the counter punch G, is flush with the floor *f*, of the die bed F, while the top *h*, of the counter die H, is the thickness of a nut below the bed face *f*, thus forming the floor of the finishing die box, the sides *f'* of the die mortise forming the sides of said box. A punch I, fixed at its lower end to the frame, occupies the central aperture of the counter die H, its top being about on a level with the bed face *f*. The counter punch G, and counter die H, rest upon a cross head J, which at the proper moment is lifted by a pair of cams K, K, connected with a lever L, which lever receives motion from a tap *m*, on a fly wheel M, upon the crank shaft.

N, is a bent iron strap in the form of a rectangular bridge or staple, rising from the die bed floor *f*, immediately in the path of the punches D, and G, and pierced to admit of their alternate passage. The rectangular space inclosed by this bridge and the die bed floor *f*, corresponds with the transverse section of the bar to be worked up, and when closed by the descent of the die E, (as hereafter explained) constitutes what I call the preparatory die box N *e*, *f*, *g*, serving to guide and confine the bar for the operation of the punches and dies.

O, is a stop for the end of the bar in feeding.

The operation is as follows:—The several punches and dies being retracted as in Fig. 1, and the machinery being in motion, a heated bar is inserted endwise beneath the bridge N, until its end is flush with the rear edge of said bridge and is there held until the descent of the die E, closes the preparatory die box which thus confines on all sides save that of its insertion so much of the bar end as corresponds to a nut. The punch D, now descends through the aperture in the bridge N, and so nearly through the substance of the bar as to leave only a thin wad or pellicle of metal between the ends of the punches D, and G. The bar being closely confined around its sides and end, the metal thus displaced from the center by the preparatory punch becomes incorporated in the substance of the bar or blank, resulting in the condensation and perfection of the blank without materially increasing its dimensions and in an increase of the length of the bar by an amount of metal, equal or nearly so, to that displaced by the punch. The slide B, and crosshead J, now ascend in concert, bearing up with them the two punches D, and G, which forcing the wad up through the aperture already made in the bar, deposit it on top of the bridge, from which it is discharged by any customary means. The punch G, now descends to its first position, and the bar is pushed forward by the attendant until its end touches the stop O, so as to bring its punched portion in a line between the dies E, and H. This stage of the operation is seen in Fig. 1. At the next descent of the slide the die E, severs from the bar, and forces the already punched blank onto the stationary punch I, within the die box *f'*, where it receives its final pressure and finish, while the punch D, is partially punching the next portion in the manner already explained. This stage of the operation is seen in Fig. 2. The reascent of the cross head by elevating the counter die H, and the counter punch G, ejects the completed nut from the finishing die box *f'*, and completes the preliminary punching of the next unsevered portion as before explained. This stage of the operation is seen in Fig. 3.

The completed nut may be discharged by spring or other customary means. Thus at each stroke of the dies (after the first) the act of completing one nut is accompanied by a partial punching of the bar for the next one, and the end of the bar being closely confined on all sides save at the place of insertion, the metal displaced by the punch is incorporated in the substance of the bar so as to add to its length as before stated.

Being aware that nuts have long been forged with very little waste, by a skillful and laborious process on the anvil, I disclaim effecting such results apart from automatic means but:—

I claim as new and of my invention herein:

1. The die box N *e f g*, and punch D, or their equivalents, operating as set forth so as to embody the greater portion of the wad or core, in the nut or bar, while confined on all sides save one, in the act of punching.

2. The arrangement of the punches D, G, and I, dies E and H, and perforated bridge N, or equivalent devices operating together substantially in the manner described for the automatic and economical manufacture of hot pressed nuts.

In testimony of which invention I hereunto set my hand.

SAML. H. WHITAKER.

Attest:

GEO H. KNIGHT,
C. STEERNER.

Know all men by these presents: That the undersigned, SAMUEL C. TATEM, of the city of Cincinnati, Ohio, being the owner of the whole interest in a certain patent originally issued by the United States to S. H. WHITAKER, dated on the nineteenth day of October, A. D. 1858, being No. 21,860, for an improvement in nut machines, the same having been fully vested in me by various assignments from the said WHITAKER, duly recorded in the Patent Office of the United States, does hereby declare that the said S. H. WHITAKER by inadvertence made his specification of claim in said patent too broad, claiming more than that of which he was the original and first inventor, in this, to wit:

In claiming the use of the punches marked D and G on the drafts annexed to said patent in combination with each other operating in a line and on opposite sides of the nut or washer in order to incorporate most of the core with the bar or nut;

In claiming the use of the stationary punch marked I on said drafts in combination with the other punches in order to give the nut or washer its final pressure and finish;

In claiming the use of the punch D in combination with the die box N *e f g* operating as set forth in said specification so as to embody the greater portion of the wad or core in the nut or bar;

In claiming the arrangement of the punches D, G, and I in combination with the dies E and H and perforated bridge N or equivalent devices operating together substantially in the manner described in said specifications for the automatic and economical manufacture of hot pressed nuts;

In claiming an improvement in the art of making metallic nuts by causing most of the core or punching to be incorporated in the substance of the bar or nut;

And I do hereby disclaim all the foregoing claims contained in said specifications in order that the same may be entered of record in the Patent Office of the United States and be taken, held, and deemed as a part of said original specification and emendatory thereof.

In witness whereof I have hereunto set my hand and seal at Cincinnati, Ohio, on this the fourteenth day of June, A. D. 1859.

SAML. C. TATEM. [L. S.]

Signed, sealed, and acknowledged in presence of—

S. R. MATTHEWS,
FRED C. JONES.