

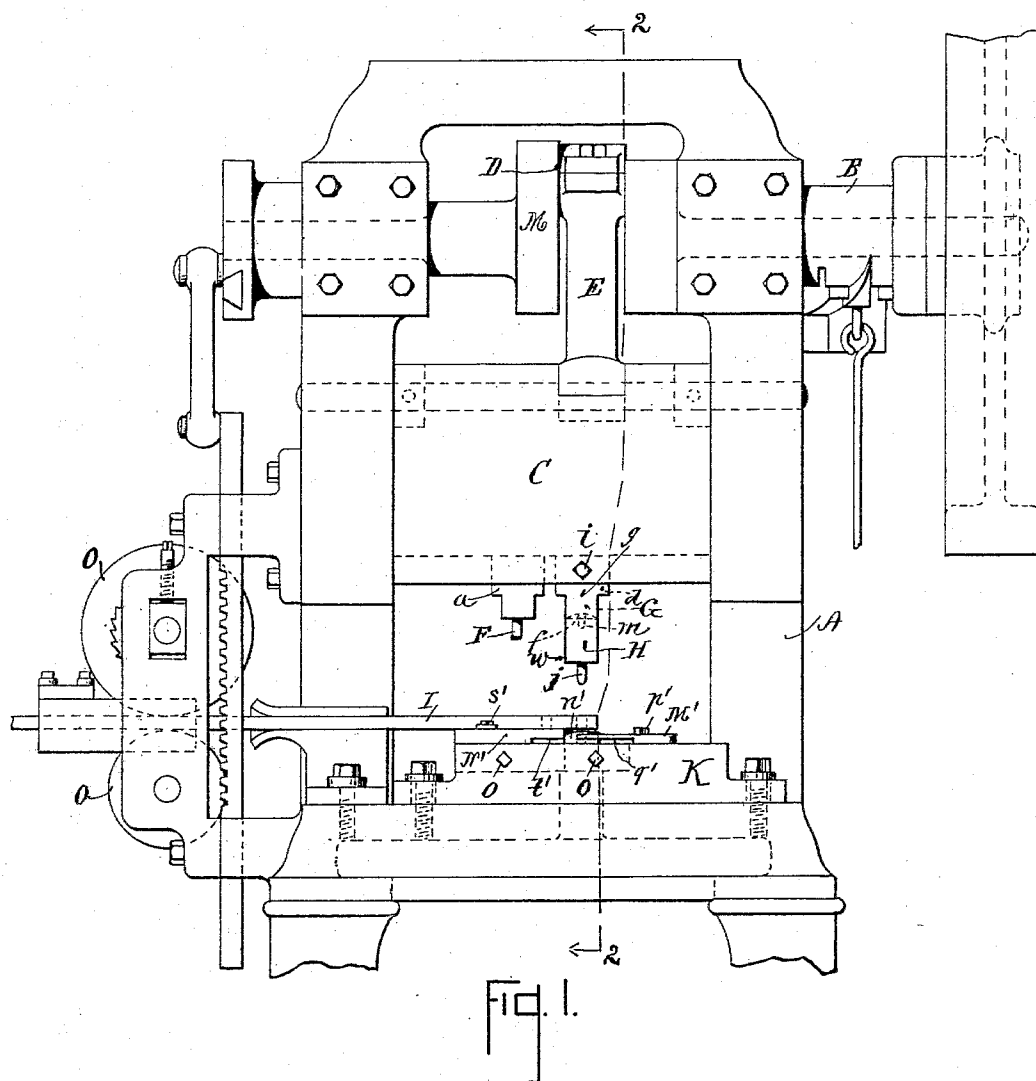
(No Model.)

3 Sheets—Sheet 1.

S. VANSTONE.
MACHINE FOR MAKING NUTS.

No. 548,617.

Patented Oct. 22, 1895.



WITNESSES.

Harry J. Garreau
John B. Lynet

INVENTOR.

Samuel Vanstone

BY *S. Scholfield*
ATTY.

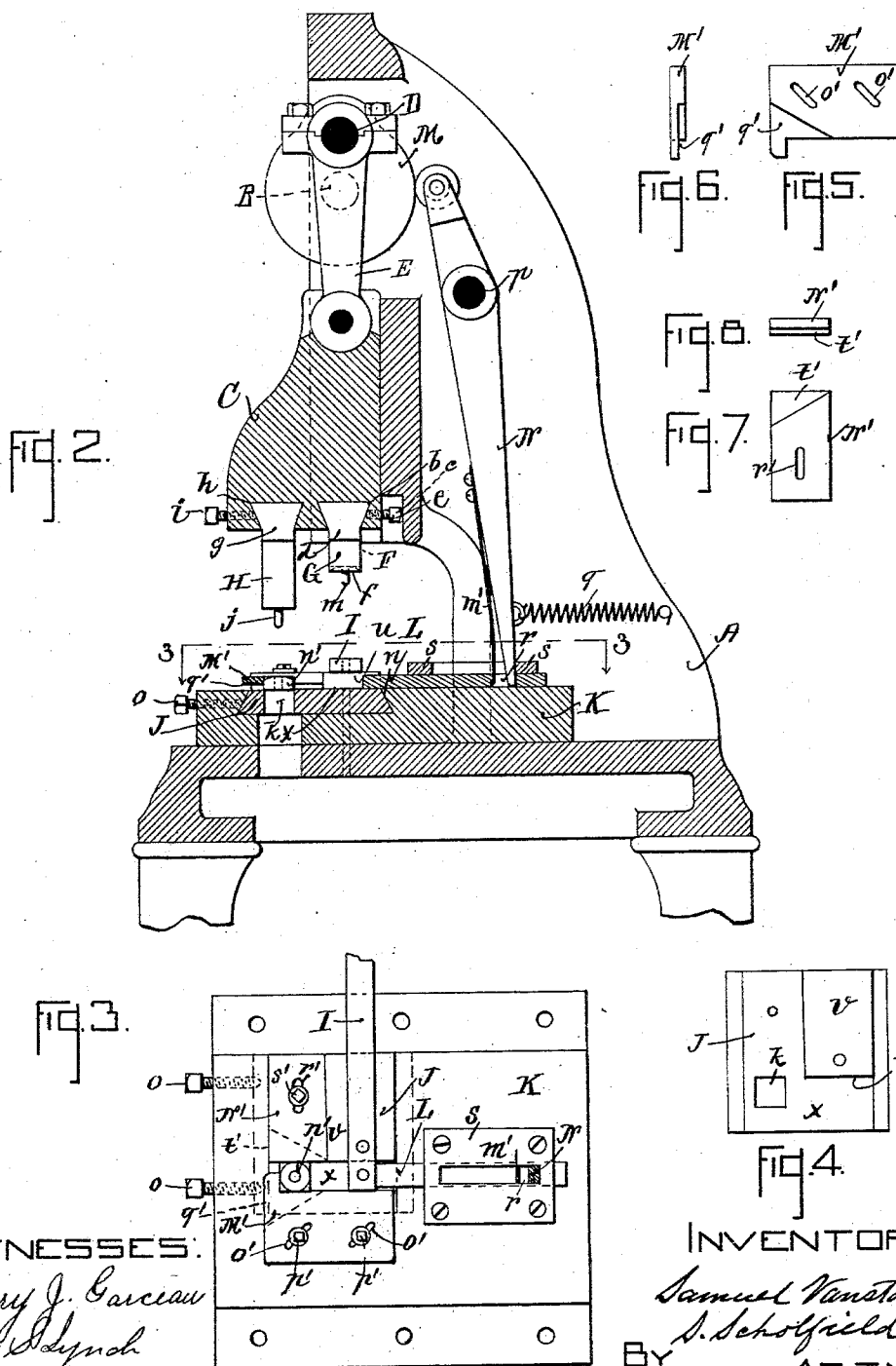
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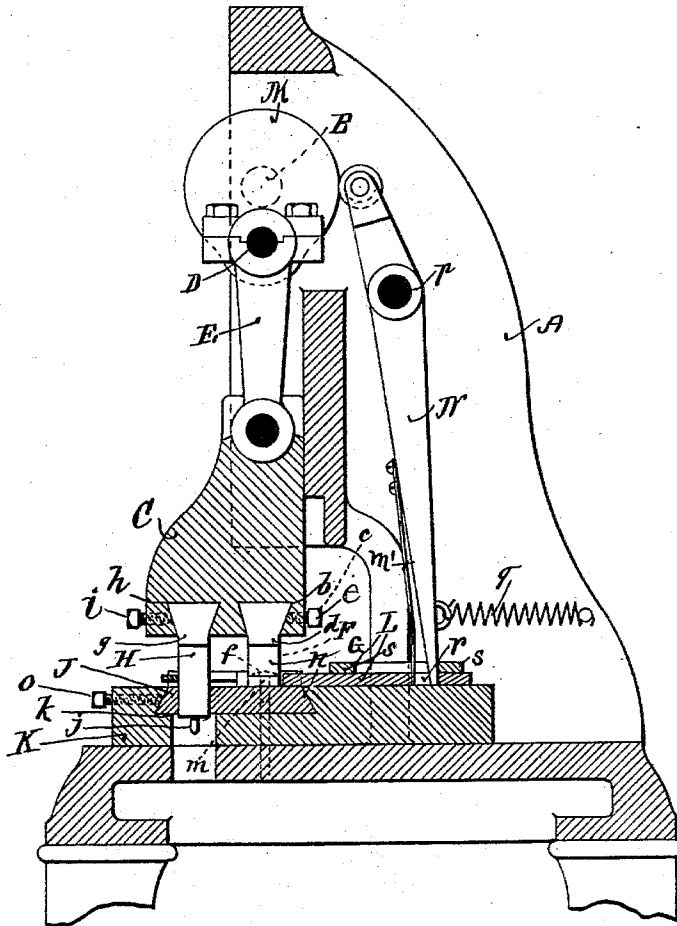


FIG. 9.

WITNESSES:

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UNITED STATES PATENT OFFICE.

SAMUEL VANSTONE, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR MAKING NUTS.

SPECIFICATION forming part of Letters Patent No. 548,617, dated October 22, 1895.

Application filed June 29, 1895. Serial No. 554,467. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL VANSTONE, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machines for Making Nuts, of which the following is a specification.

My invention consists in the improved construction and arrangement of parts whereby, in a press in which the plungers and punches are attached to a single vertically-reciprocating head, the carrier which pushes the blank forward to the trimming-die moves forward while the plungers and punches are making their upward movement and in the combination, with the carrier so arranged and operated, of a stop-guide for arresting the forward movement of the nut-blank in its proper position over the trimming-die, as hereinafter set forth and claimed.

Figure 1 represents the front elevation of a machine embodying my improvement. Fig. 2 represents a vertical section taken in the line 2 2, Fig. 1, showing the punches in their elevated position. Fig. 3 represents a horizontal section taken in the line 3 3 of Fig. 2. Fig. 4 represents a top view of the die removed from the press. Fig. 5 represents an under view of the stop-guide for holding the nut in line with the trimming-die. Fig. 6 represents a forward edge view of the same. Fig. 7 represents an under view of an auxiliary guide for holding the nut over the trimming-die. Fig. 8 represents an end view of the same. Fig. 9 represents a vertical section taken in the line 2 2 of Fig. 1, showing the punches in their lower position.

In the drawings, A represents the frame of the machine, B the driving-shaft, and C the cross-head, which is connected with the crank D of the shaft B by means of the connecting-rod E. The cross-head C is provided with the punch F, the cutting-off and swaging plunger G, and the trimmer-plunger H. The shank *a* of the punch F is held in the dovetailed groove *b* of the cross-head C and is adjustably secured therein by means of the set-screw *c*. The shank *d* of the swaging-plunger G is also held in the groove *b* and is secured therein by means of the set-screw *e*, the said plunger being provided with a concave face *f*, adapted, when under pressure, to cause

the proper swaging of the nut, and also provided with the spur *m*, adapted to enter the previously-punched hole in the bar I, from which the nuts are to be cut. The shank *g* of the trimming-plunger H is held in the dovetailed groove *h* of the cross-head C and is secured therein by means of the set-screw *i*. The plunger H is preferably provided with the spur *j*, adapted to enter the hole in the nut and thus to hold the nut in proper position for entering the opening *k* of the trimming-die, by means of which the edges of the nut are shaved to the standard size.

The die J for the several plungers, as shown in the drawings, is made in one piece; but the same may be made in separate pieces, if desired, and the said die J is held in the dovetailed groove *n* of the die-holder K by means of the set-screws *o o*. The sliding carrier L, which serves to push the swaged nut forward to the trimming-die, is operated from the cam M on the driving-shaft by means of the lever N, which is attached to the pivot-rod *p* and held against the cam by means of the spiral spring *q*, the lower end of the lever N being provided with the spring *m'* and held in the opening *r* in the carrier L, the said carrier being held in position for sliding movement by means of the cap *s*, secured to the die-holder K.

The sliding carrier L is arranged to move over the die J in a plane below that portion of the plane of the upper surface *v* of the die J, which receives the action of the punch F, so that when the punched nut-blank is cut off from the bar I by means of the inner edge *w* of the swaging-plunger G, which engages with the cutting-shoulder *u* of the die, it will rest in an unconfined position upon the lower portion *x* of the upper surface of the die J in advance of the carrier L preparatory to its removal to the trimming-die by means of the pushing action of the carrier.

The bar of iron I to form the nuts may be fed to the machine by any suitable means, as by a pair of rolls O O, or otherwise, and upon starting the machine the bar I will be first acted upon by the punch F to make the hole of the nut and then carried under the cutting-off and swaging plunger G, to be cut and swaged thereby, and then upon the upward movement of the plunger the swaged nut will

be pushed forward by the forward movement of the carrier L to a position over the opening *k* of the trimming-die, to be forced downward through the same upon the succeeding downward movement of the plunger H, the carrier L being returned to its receiving position at the rear of the swaging-plunger while the plungers are in their elevated position.

In order to provide for stopping the nut *n'* in proper position over the trimming-die, I arrange the stop guide-plate M', which is made adjustable by means of the slots *o' o'* and secured to the die-holder K by means of the screws *p' p'*, the forward portion of the stop guide-plate M' being cut away at its under side *q'*, as shown in Figs. 5 and 6, so that the chips which are shaved from the edges of the nut will have room to pass outwardly from the nut. A corresponding guide-plate N' is employed at the opposite side of the nut *n'*, the said guide-plate being provided with the slot *r'* and secured to the die-holder K by means of the screw *s'*, the under side *t'* of the guide-plate N' being cut away, as shown in Figs. 7 and 8, in order to allow for the outward passage of the chips shaved from the side of the nut in its downward passage through the opening *k* of the trimming-die.

I am aware that it is not new to accomplish the series of operations necessary to cut the blank from the bar and form the nut within the time required for a single thrust of the punches to be made; but this result has heretofore been attained by the combination of nut holding and transferring tongs, which are capable of giving up the nut-blank which they carry to the trimming-die and punch, when the latter commences to operate upon it, and which are made to execute a return movement to position for receiving another nut-blank, then being cut out from the bar of stock in advance of the rate of movement of the punch-carrying plunger, and I do not make

claim to a machine for making nuts which embodies the combination of cutting-out punch and die, a trimming-punch and die, and a nut-blank receiver and transferrer, which possesses the characteristics and is arranged to perform the functions above mentioned.

I claim as my invention—

1. In a machine for making nuts, the combination of the vertically reciprocating head, the punch for perforating the bar, the punching die, the cutting and swaging plunger made concave on its face, the trimming plunger, and die, the carrier operating to push the swaged nut-blank toward the trimming die, while the reciprocating head is making its upward movement, and returning to its receiving position, prior to the engagement of the trimming plunger with the nut-blank, and the stop-guide provided at its under side with a passage for the chips removed from the sides of the nut-blank, substantially as described.

2. In a machine for making nuts, the combination of the vertically reciprocating head, the punch for perforating the bar, the punching die, the cutting and swaging plunger, the trimming plunger and die, the carrier operating to push the swaged nut toward the trimming die, while the reciprocating head is making its upward movement, and returning to its receiving position prior to the engagement of the trimming plunger with the nut-blank, the stop-guide provided at its under side with a passage for the chips removed from the sides of the nut-blank, and the supplemental guide also provided at its under side with a passage for the chips, substantially as described.

SAMUEL VANSTONE.

Witnesses:

SOCRATES SCHOLFIELD,
HENRY E. REYNOLDS.