

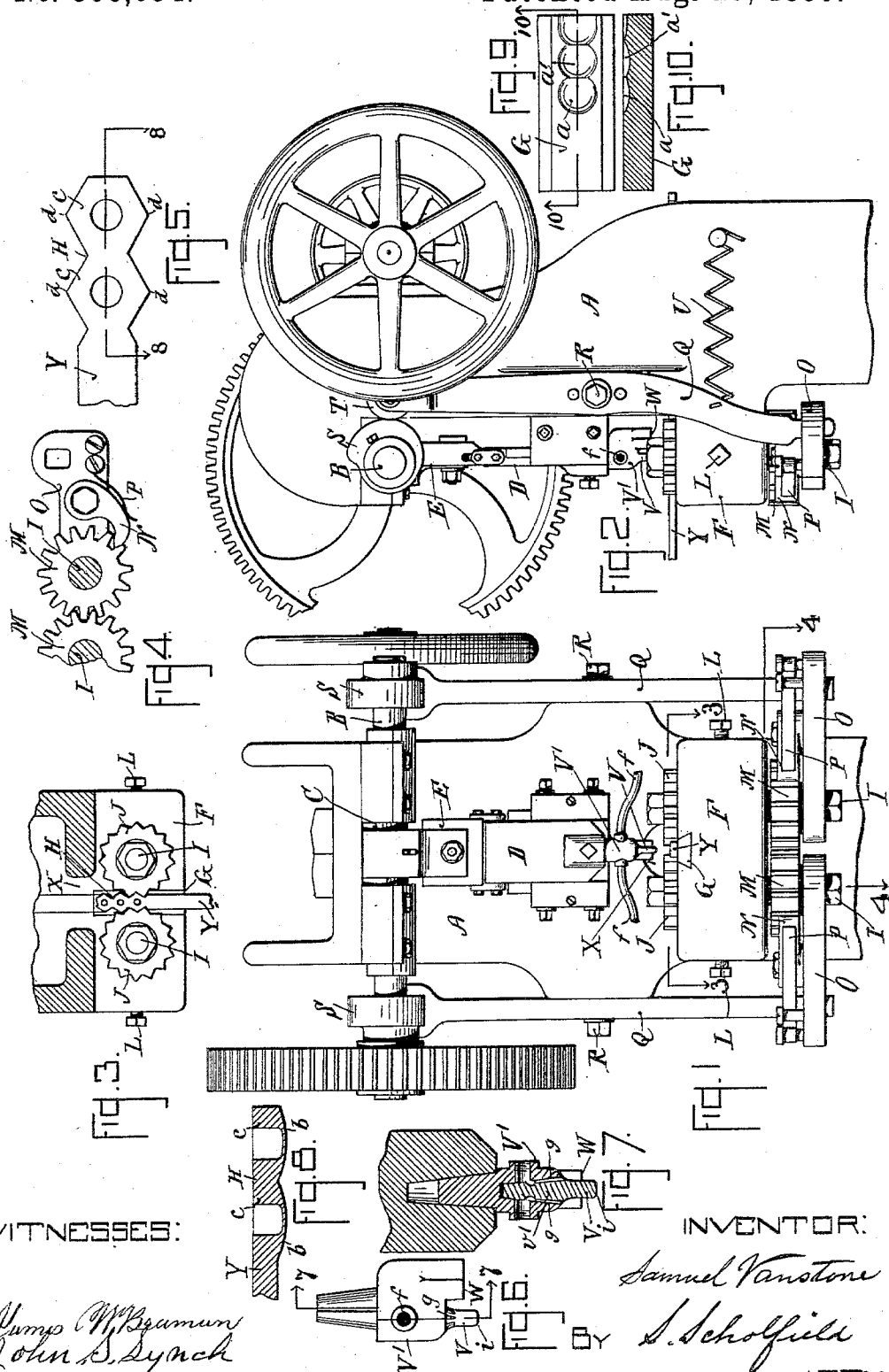
(No Model.)

S. VANSTONE.

NUT BLANK AND MACHINE FOR MAKING SAME.

No. 566,634.

Patented Aug. 25, 1896.



WITNESSES:

James W. Brigham
John S. Lynch

INVENTOR:

Samuel Vanstone
S. Scholfield

ATTY.

UNITED STATES PATENT OFFICE.

SAMUEL VANSTONE, OF PROVIDENCE, RHODE ISLAND.

NUT-BLANK AND MACHINE FOR MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 566,634, dated August 25, 1896.

Application filed October 25, 1895. Serial No. 566,906. (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 Nut-Blanks and Machines for Making the Same, of which the following is a specification.

The object of my invention is to produce hexagonal nut-blanks from a flat rolled bar of narrower width than the distance between the opposite corners of the blank without waste of stock; and it consists in a series of crowned hexagonal nut-blanks formed in a continuous bar having serrated edges which conform to the opposite edges of the nut-blanks, and having the blanks punched from one side to a thin web upon the opposite crowned side of the blank.

It also consists in the improved construction and arrangement of the parts of the machine, whereby the nut-blank is punched and crowned by means of a reciprocating punch after the edges of the bar have been first pressed into serrated form by means of rolls whose axes of rotation are parallel with and in the same plane with the axis of the punch, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents a front elevation of the machine. Fig. 2 represents a side elevation of the same. Fig. 3 represents a top view of the die-bed, showing the recessed rolls. Fig. 4 represents an under view of one of the ratchet-levers by means of which the rolls are operated. Fig. 5 represents an enlarged top view of the nut-blanks in the bar. Fig. 6 represents an enlarged side view of the punch and the punch-socket. Fig. 7 represents a section of the same, taken in the line 7 7 of Fig. 6. Fig. 8 represents a section of the bar, taken in the line 8 8 of Fig. 5. Fig. 9 represents an enlarged top view of the die. Fig. 10 represents a section taken in the line 10 10 of Fig. 9.

In the drawings, A represents the frame of the machine; B, the crank-shaft; C, the crank; D, the sliding head, and E the link which connects the sliding head with the crank. Upon the die-bed F, which is a forward projection of the frame A, is arranged the die G, the said die being provided with the recesses *a a'*, adapted to receive the crowned side *b* of the

nut-blank *c* in the bar H. Upon the upper ends of the upright shafts I I, which extend through the die-bed F, are secured the recessed rolls J J, which serve to serrate the opposite edges of the bar K to form the opposite corners *d d* of the nut-blanks, the said shafts being made adjustable toward each other by means of the set-screws L L. At the lower ends of the shafts I I are secured the gear-wheels M M, the teeth of which engage with each other, the said gears and their shafts I I being operated for rotation by means of the ratchet-pawls N N, which are pivoted to the ratchet-levers O O and actuated toward the said gears by means of the springs P P. The ratchet-arms O O are pivoted to the lower ends of the shafts I I and are actuated to impart the required intermittent rotary movement to the rolls J J by means of the levers Q Q, which are pivoted to the sides of the frame A by means of the bolts R R and actuated by means of the cams S S upon the shaft B. The upper ends of the levers Q Q are provided with antifriction-rollers T T, which are held in contact with the periphery of the cams S S by means of springs U U.

The punch V, which is provided with the rounded end *i* and the punch-socket V', is made hollow, as shown in the section Fig. 7, and provided with the flexible pipes *f f*, through which water is made to pass to cool the punch, and small grooves *g g* are formed on the shank to allow the liquid to escape to the outer side of the punch for cooling or lubricating purposes. The punch-socket V is provided at its rear with the swaging-face W, which serves to swage the nut after it has been first punched and crowned.

The operation of the machine is as follows: The red-hot bar of stock Y of the proper thickness, and of a width somewhat less than the distance between the opposite corners *d d* of the nut, is passed into the space between the recessed peripheries of the rolls J J, and when the opposite corners *d d* have been imperfectly impressed upon the bar and the punch V is brought down over the solid die G the rounded end *i* of the punch will cause the spreading of the metal, so as to fill out the corners *d d* to the required degree of sharpness, and will leave a thin web of unpunched metal at the crowned side of the bar, and as

the machine continues in operation the operation of the ratchet-pawls N N will serve to rotate the gears M M for the space of one tooth, thus bringing the bar Y forward to form another nut-blank, the shafts I I being made capable of a slight up-and-down movement in their bearings to allow the crowned lower surface of the bar to pass out of the first recess *a* into the corresponding recess *a'* of the die G, and upon the succeeding downward movement of the punch the nut-blank then held between the rolls J J will be punched and spread, as before, and the previously-formed nut-blank will be swaged by the engagement of the swaging-face W with the upper surface of the blank. As the machine continues in operation the bar of nut-blanks H will be fed forward through the opening X to the rear of the machine. The rolls J J and the gears M M may be readily changed for making nuts of different sizes, the said rolls and gears being removed from the shafts I I and others substituted therefor, and in that case the stroke of the ratchet-pawls N N may be correspondingly varied by moving the pivot-bolts R R, so as to change the throw of the lower ends of the levers Q Q.

I claim as my invention—

1. A series of crowned hexagonal nut-

blanks, formed in a continuous bar, the serrated edges of which conform to the opposite edges of the nut-blanks, and having the blanks punched to a thin web upon the crowned side of the blanks, substantially as described.

2. In a machine for making nut-blanks, the combination of the intermittently-operated recessed rolls, adapted to impart a serrated form to the opposite edges of the bar, and the solid crowning-die located in the plane of the axes of the recessed rolls, with the reciprocating punch having its axis located in the said plane, and adapted to punch the bar to a thin web at the crowned side, substantially as described.

3. In a machine for making nut-blanks, the combination of the intermittently-operated recessed rolls, adapted to impart a serrated form to the opposite edges of the bar, with the reciprocating punch having its axis located in the plane of the axes of the recessed rolls, and a swaging-face arranged to operate upon the bar behind the punch, substantially as described.

SAMUEL VANSTONE.

Witnesses:

S. SCHOLFIELD,

H. J. GARCEAU.