C. W. DEAN.

CUT NAIL MACHINE.

No. 248,640. Patented Oct. 25, 1881.

Fig: 1.

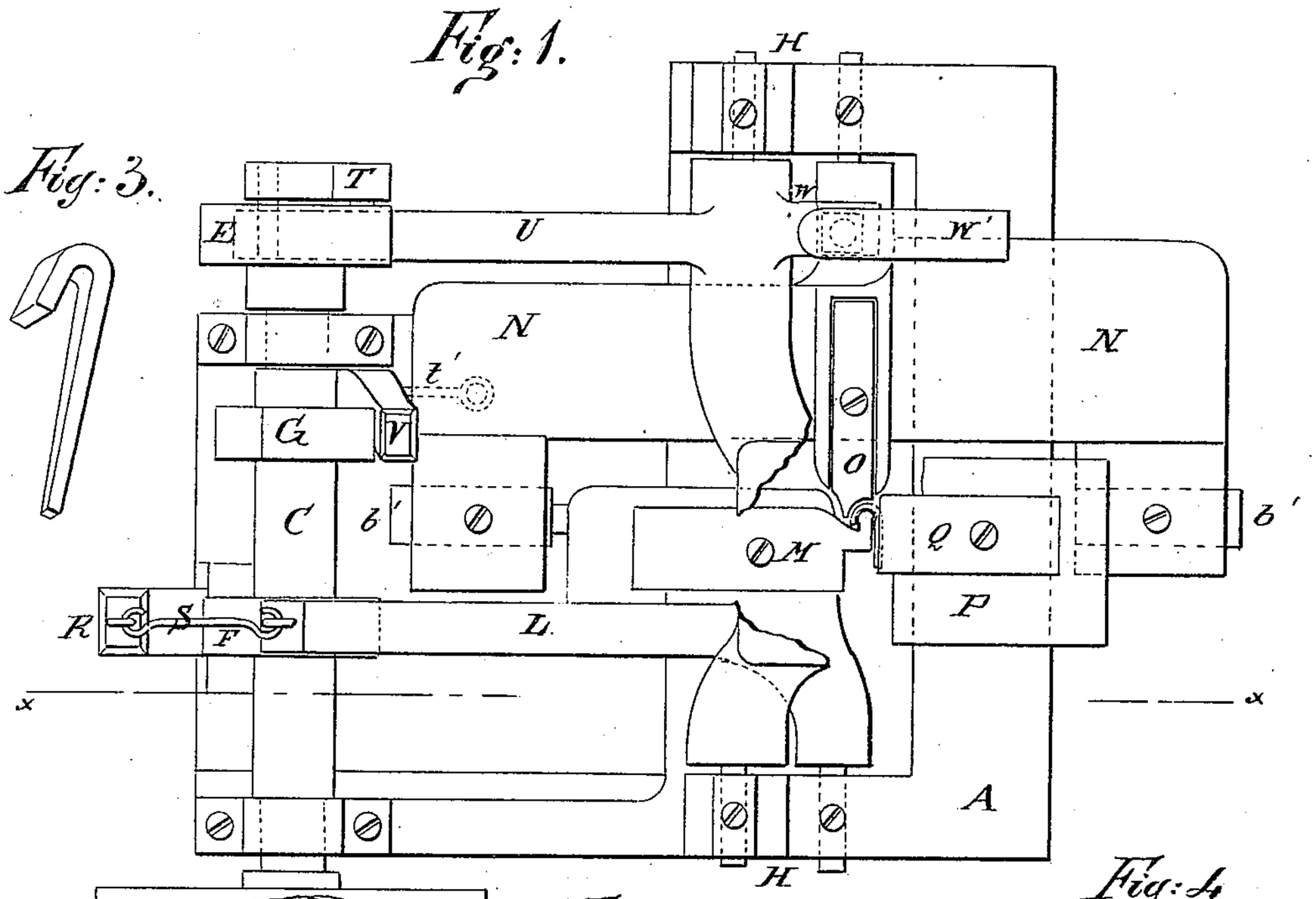


Fig: 3.

Fig: 5.

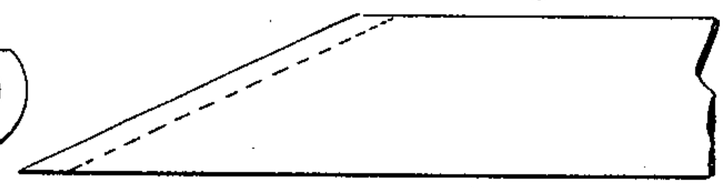


Fig: 4

Fig: 7.

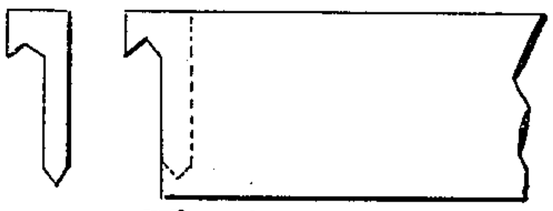


Fig: 6

Fig: 8.

Fig: 9

Fig: h.

Fig: 10

Fig: 11

Fig: 12.

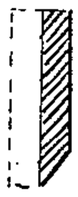
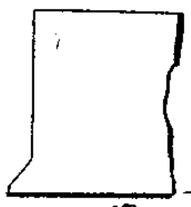


Fig: 13.



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UNITED STATES PATENT OFFICE.

CHARLES W. DEAN, OF TAUNTON, MASSACHUSETTS.

CUT-NAIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 248,640, dated October 25, 1881.

Application filed February 6, 1879.

To all whom it may concern:

Be it known that I, CHARLES W. DEAN, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and Improved Nail-Machine, of which the following is a specification.

Figure 1 is a plan of the machine. Fig. 2 is a sectional view on line *x x*, with parts broken away to show cutter, &c. Fig. 3 shows one style of nail made by the machine. Fig. 4 shows nail-plate and direction of cut for making the nail shown in Fig. 5. Fig. 5 shows another style of nail made by the machine. Fig. 6 shows nail-plate and character of cut for producing the nail shown in Fig. 7. Fig. 7 shows a third style of nail made by the machine. Fig. 8 shows the bed-knife used in making the nail shown in Fig. 7. Fig. 9 shows the moving knife used in making the nail shown in Fig. 7. Fig. 10 shows a nail-plate and character of cut for producing the nail shown in Fig. 11. Fig. 11 shows a fourth style of nail made by the machine. Fig. 12 shows the moving knife used in making the nail shown in Fig. 11. Fig. 13 shows the bed-knife used in making the nail shown in Fig. 11.

Similar letters of reference indicate corresponding parts.

This invention has for its object the construction of a machine by which hooked nails and nails of various other shapes may be made.

From the bed-plate A rise the standards B B, which support the shaft C. On one end of the shaft is the driving-pulley D, and on the other end an eccentric, E, while intermediate between the two are the cams F and G. Set upon the bed-plate also are the pillow-blocks H H, which give support to the bearings of the cutting-jaw I, that is shown in side section in Fig. 2, carrying the adjustable moving knife K.

The griping-lever L, that carries the moving die M, rocks on shaft or pin *a'*, that passes through the bed-plate from side to side, and the shafts or pins *b'*, on which moves the heading-lever N, that carries the header O, has its bearings directly upon the cross-pieces of the bed-plate, and the stationary bed P, that carries the bed-knife Q, and the bed-die Q' under the knife is firmly secured to the plate A. When the shaft C is revolved it will be seen that the griping-lever L is so actuated by the cam upon which its upper end rests that it will alternately rock forward to gripe and hold fast the nail-blank that may be between the end of the moving die M and the bed-die Q', while the header O operates to form the hook-head, and backward to release the nail, through the agency of the spring R, operating through the link S.

The mechanism directly pertaining to the cutting-jaw I consists of the eccentric E, with its rod T, pivoted to the long arm U of the jaw. Through these, when the shaft C is revolved the necessary rocking motion is given to the jaw.

The mechanism peculiar to the heading-lever N consists of the cam G, the lever V, which is pivoted at S' on one of the standards, and is in contact with the cam at its upper end, while its lower end is connected with N by a link, *t'*.

The cutter-jaw I is provided with an offset carrying the horn W, while the heading-lever N has a horn, W', the two horns being connected by a pin, V'. This pin is supported at the ends in socket-boxes *d' d'*, of which the one in horn W is shown to be adjustable in an elongated slot thereof, so as to change the throw of the heading-lever. As the cutting-jaw rocks upward the action of the cam G upon the upper end of the lever V causes the heading-lever N to be drawn inward until the point of the header O is opposite the end of the nail to be headed. Instantly, then, the horn W tilts upward also, and by means of the pin V' rocks the heading-lever sidewise, so as to bring the point of the header O to bear with sufficient pressure upon the nail end. The continuing revolution of the eccentric E and the cam G reverses the sidewise-rocking motion of the heading-lever and releases the horn W, so that the spiral spring O' may instantly react and push the said heading-lever out to its primary position.

When the machine is in operation the nail-plate is fed by hand or otherwise over the bed-knife Q. The cutting-jaw I then rocks downward and with its knife K cuts a nail-blank, which is instantly griped between the end of the die M and the bed-die Q' and held until it is headed by the header O. By the continuous revolution of the shaft C these motions are at once reversed and again renewed, and so on continuously and in quick succession, the nail-

plate being fed to the machine with a rapidity that is limited only by the speed of the machine itself.

It will be observed that the moving knife K, the moving die M, the bed-knife Q, the bed-die Q′, and the header O may each and all be easily removed and others substituted for them that will produce nails of other shapes and sizes, while the toggle V′ can instantly be changed for one of different length to conform to the changes made.

In all tack or nail machines with which I am acquainted the heading-lever centers are tapered, while mine, in which are the shafts or pins *b′*, it will be seen, are straight with the shoulders. I propose, however, in some instances, so to construct and arrange the heading-lever and the header that the lever shall have tapering centers, so that it cannot slide, while the header shall instead be made to slide on the lever.

The bed and moving dies in my machine are also movable and can be changed for other shapes and adjusted at will. From the shape of the moving die and the movements of the heading-lever, it will be seen that the machine is designed especially for making hooked-headed nails. The inward movement of the heading-lever causes the header O to bend or turn the end of the nail-blank, while the sidewise motion causes it to press the turned end into a shape conforming with the die M.

It is obvious that if the spiral spring O′ were removed from its present position to a corresponding one at the other bearing of the heading-lever, and a slight change were made in the relative adjustment of the cam G and lever V, the nails could be turned on the bed-die as well as they can now be turned on the die M, the bed-die, of course, being made of a proper shape.

Figs. 4, 6, and 10 of the drawings show some of the different cuts that are made by this machine, and Figs. 3, 5, 7, and 11 are the nails produced. The nails can be made with flat or edge gripe, as desired, and from sheet-iron tack or nail plate.

It is obvious, too, that by changes in the shapes and lengths of the header O and the dies and knives, nails of various shapes and without hooked heads may be produced by this machine.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In nail-machines, the socket-box *d′*, adjustable in an elongated slot of the horn W, as and for the purpose specified.

2. The combination, with the stationary griper Q′, of the movable griper M and header O, relatively constructed as herein described and shown to form a hook-head, as shown and described.

3. The combination, with the header O, of the lever N, operated by the cam G through link *t′* and lever V, and retracted by the spring O′, as and for the purpose specified.

CHARLES WARREN DEAN.

Witnesses:

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