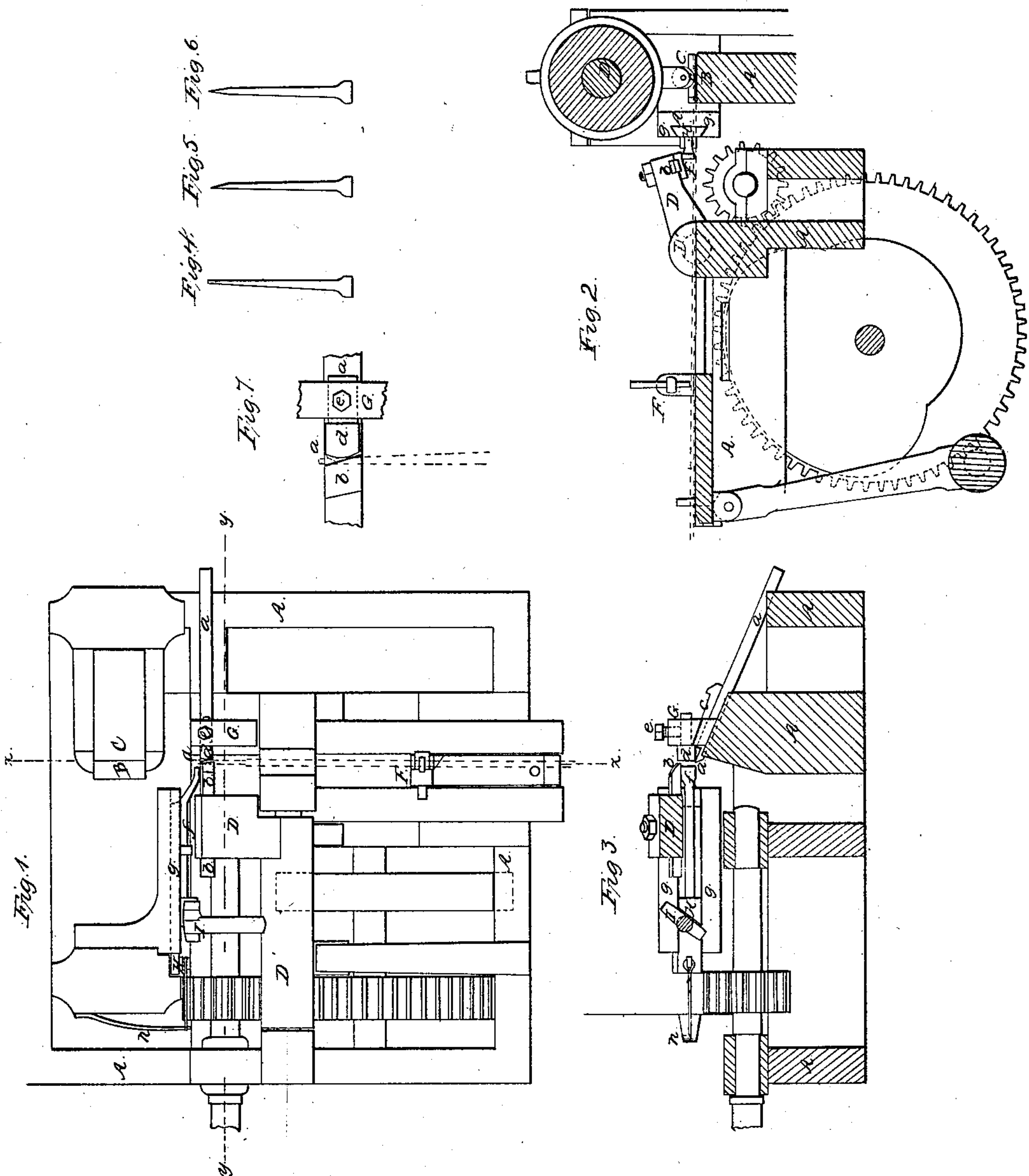


D. Dodge.

Horseshoe-Nail Machine.

N^o 41,141.

Patented Jan. 5, 1864.



Witnesses.
Wm. D. Taylor
Wm. D. Taylor

Inventor.
Daniel Dodge.

UNITED STATES PATENT OFFICE.

DANIEL DODGE, OF KEESEVILLE, NEW YORK.

IMPROVEMENT IN MACHINES FOR MAKING HORSE-SHOE NAILS.

Specification forming part of Letters Patent No. 41,141, dated January 5, 1864.

To all whom it may concern:

Be it known that I, DANIEL DODGE, of Keeseville, in the county of Essex and State of New York, have invented a new and useful Improvement in Nail-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan of a sufficient portion of a nail-machine to illustrate my improvement. Fig. 2 is a vertical longitudinal section of the machine, taken close to the principal operating parts, as indicated by the line *x x* in Fig. 1. Fig. 3 is a transverse vertical section of the same in the line *y y* of Fig. 1. Figs. 4, 5, and 6 are top views of a nail, illustrating the operation of the improvement. Fig. 7 is a top view of the pointing cutters on a larger scale than Figs. 1, 2, and 3.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to machinery for the manufacture of forged nails, more especially horseshoe-nails.

In the manufacture of such nails by machinery it is difficult to produce as thin or fine a point as is desirable by a hammering or drawing operation. I have therefore adopted the plan of cutting the points after having reduced the nail as much as desirable by hammering or drawing.

My improvement consists in the employment, in a machine for making forged nails, of cutters so constructed and applied that they will serve the purpose of cutting metal from the side of the nail to reduce the thickness and produce the desired form of the point.

It also consists in the employment, in combination with such cutters, of a moving finger or presser so arranged in combination with a fixed guide as to press the nail against such guide and hold it in contact therewith and in proper position during the operation of cutting the point, and as to so act upon the point before or during the cutting operation as to bring it into line with the center of the nail when the cutting is completed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The parts of the machine represented, excepting the improvements which constitute the present invention, are substantially or for the most part such as are described in my Letters Patent Nos. 25,183 and 25,309.

A is the framing; B, the anvil; C, the fixed die having its face at a right angle to the anvil; D, the shaft carrying the roller *r*, which revolves opposite to the face of the anvil.

The above-mentioned parts are constructed and operate substantially as described in Letters Patent No. 25,309.

F is the reciprocating gripper, which forms part of the subject-matter of Letters Patent No. 25,183.

a and *b*, Figs. 1, 3, and 7, are the cutters by which the surplus metal is cut from the point of the nail to make the nail of proper length and bring the point to the proper form. The lower cutter, *a*, is inserted in a suitable groove provided in the framing, and secured in a fixed position by a key, *c*, as shown in Fig. 3. The said cutters are arranged and operated in the same manner as the cutters described in my Letters Patent No. 25,309 for cutting off the nail—that is to say, the upper cutter, *b*, is secured in the same vibrating stock or arm, D, as the cutter which cuts off the nail from the rod, the said stock or arm being carried by a rock-shaft, D'. The latter cutter and the fixed cutter, in connection with which it operates, are neither of them shown, but are supposed to be applied and operated as described in my before-mentioned Letters Patent; but the edges of the cutters *a b*, instead of being at right angles to the line of the nail and nail-rod, which are shown in red color in Figs. 1, 2, and 7, are arranged obliquely thereto, so that they will cut the nail in an oblique or slanting direction, as shown in the plan view, Fig. 7, and so produce the desired taper and thin point. *d* is the fixed guide against which the nail is held while the point is being cut. This guide is arranged close above the fixed cutter *a* in a fixed stock, G, in which it is secured by a set-screw, *e*, but in which it is adjustable transversely to the line of the nail-rod and nail to allow the nail to come to a proper position over the edge of the cutter *a*.

f is the finger by which the nail is pushed against the guide *d* arranged behind the cutters *a b* on the opposite side of the path in

which the nail-rod and nail pass through the machine to that on which the guide *d* is arranged. This finger is attached to a horizontal slide, H, which is fitted to slide in fixed guides, *g g*, and which is pushed toward the nail every time the cutters operate by means of an oblique-faced cam or wiper, I, attached to the rock-shaft D', and afterward drawn back by a spring, *h*, which connects it with the framing of the machine.

The operation of the cutters *a b* and finger *f* is as follows: After the nail has been drawn out as thin as is desirable by means of the roller *r* and the hammer (not shown) operating in combination with the anvil B and fixed die C, as described in Letters Patent No. 25,309, it is drawn back toward the front of the machine by the reciprocating gripper, F to a position to be cut from the rod, and while it is so drawn back the cutter-stock D descends and the finger *f* advances toward the portion which is left projecting beyond the guide *d*, and so holds the nail against the said guide while the cutter *b* descends to cut off the surplus metal from the point. The cutters *a b* finish their operation before the cutter which cuts off the nail from the rod, and the advance of the finger *f* continues during the operation of the cutters *a b*, by which means it is caused to press the point of the nail continually toward the side of the machine on which the guide is placed and bring the taper point produced by the cutters in line with the center of the nail, as shown in Fig. 6.

Were it not for the above-described operation of the finger *f*, the point of the nail would be cut in the form shown in Fig. 5, which would be just as good for all practical purposes, as the nails are always drawn to a finer point by the horseshoer, who would at the same time straighten the point; but the nail

in the last-mentioned form, not looking so well, would be less marketable. The same effect as shown in Fig. 6 would be produced by arranging the finger *f* to bend the point of the nail sufficiently to the right before the operation of the cutters *a b* commences.

Instead of using a separate piece, *d*, for the guide or gage, the lower cutter, *a*, may be made to serve the same purpose by giving its edge an upward elevation toward the front of the machine, so that the cutters commence cutting in front with a shears-like action and cut toward the point of the nail.

The machine may be furnished with means of holding the nail in front of the cutters *a b* during the cutting operation.

Instead of a single pair of cutters to cut from one side only of the point of the nail, there may be two pairs of cutters to cut from both sides, in which case the point of the nail would be produced in the center without the use of the finger *f* or other device for the same purpose.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The employment, in a machine for making forged nails, of cutters so constructed, arranged; and operating as to serve the purpose of cutting metal from the side to reduce the thickness and produce the desired form of the point of the nail, substantially as herein specified.

2. The finger *f*, or its equivalent, operating in combination with the upper cutter, *b*, and with a fixed guide or gage, substantially as and for the purposes herein set forth.

DANIEL DODGE.

Witnesses:

THOS. S. J. DOUGLAS,
M. M. LIVINGSTON.