D. Dodge,

Nail Machine,

No. 25,309, Patented Aug. 30, 1859.

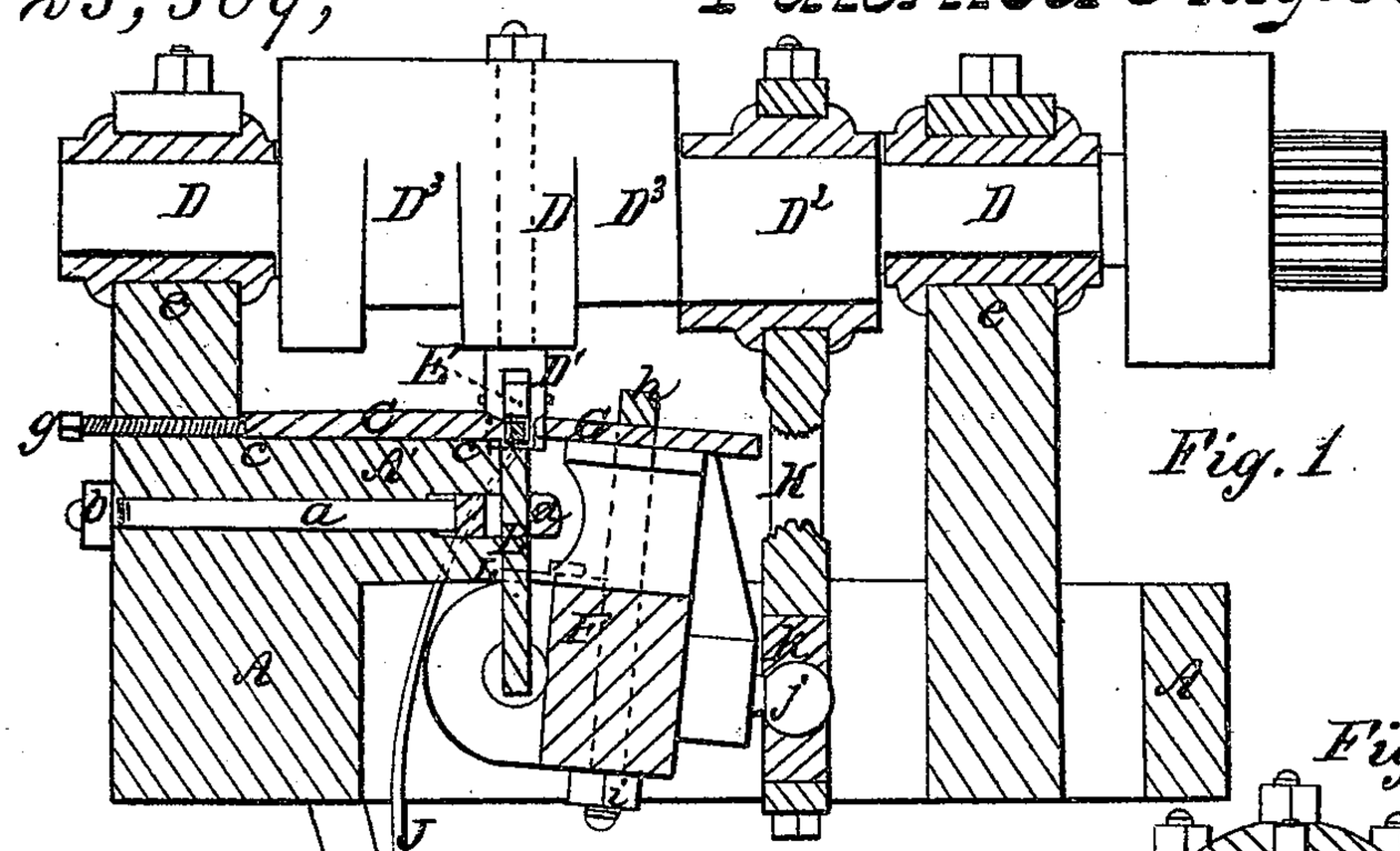

Fig. 1

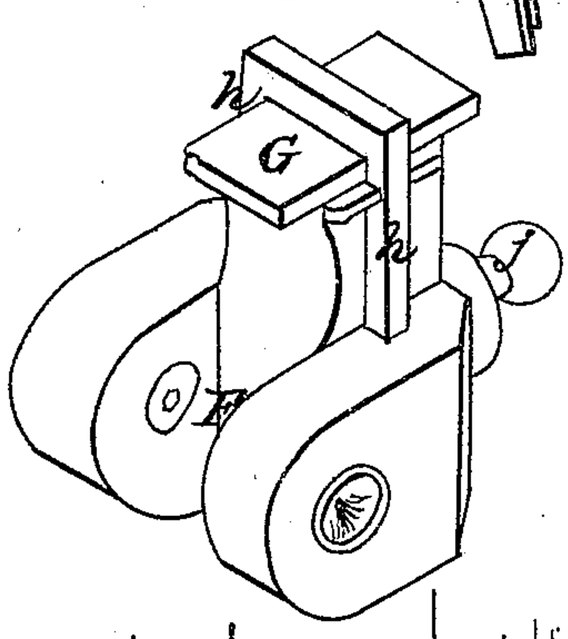

Fig. 4

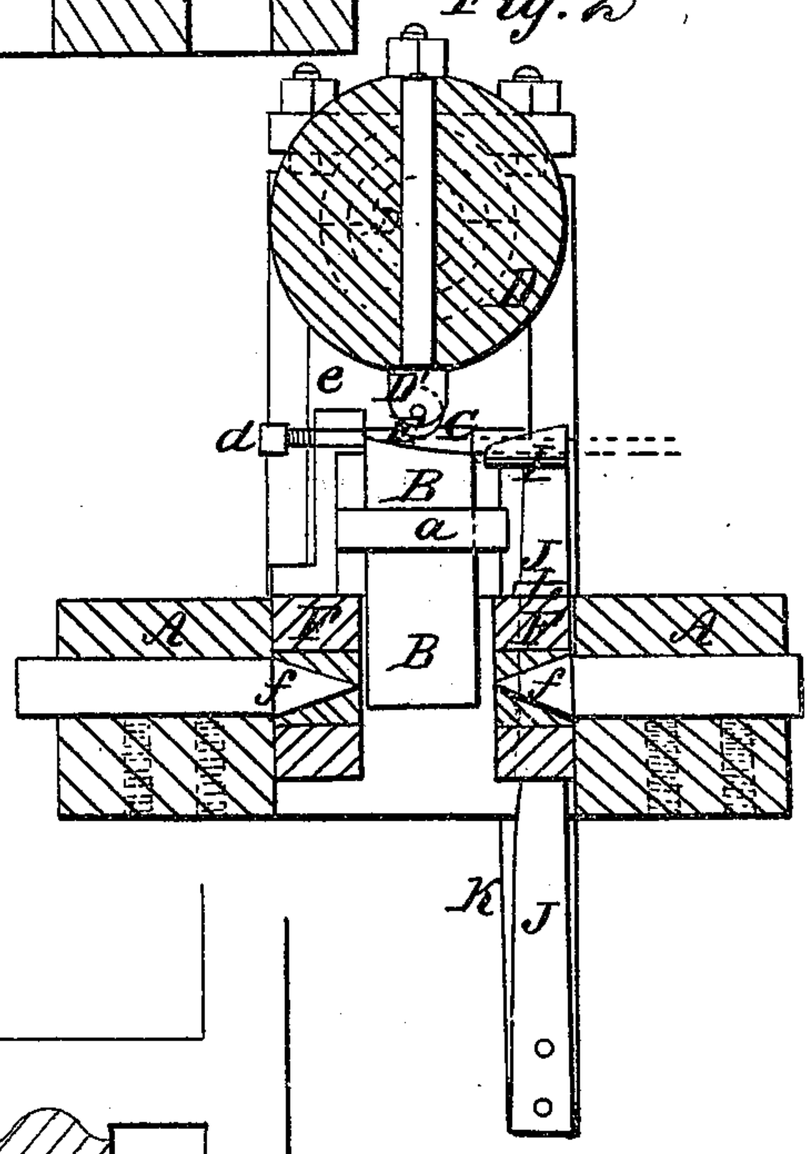

Fig. 2

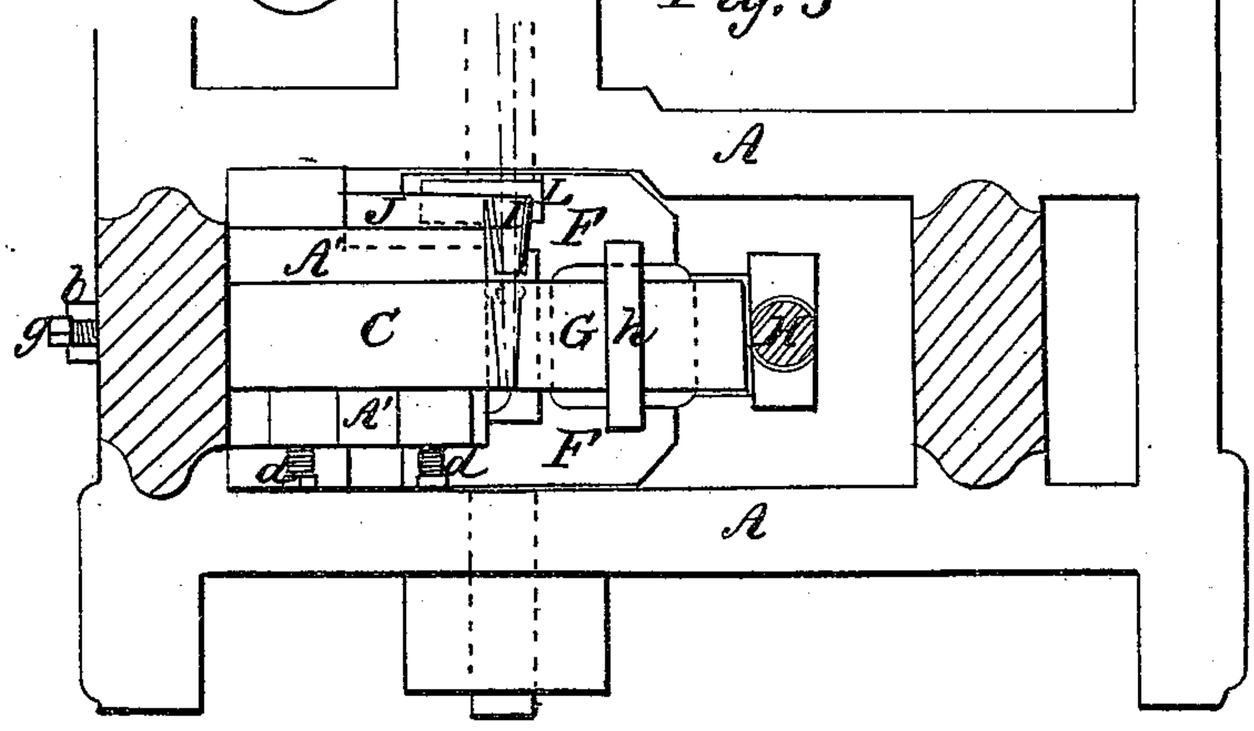

Fig. 3

Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL DODGE, OF KEESEVILLE, NEW YORK.

NAIL-MACHINE.

Specification of Letters Patent No. 25,309, dated August 30, 1859.

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 certain new and useful Improvements in Machinery for Forging or Pointing Nails or Spikes or other Articles; 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 part of this specification, in which—

Figures 1 and 2 are vertical sections at right angles to each other of the pointing or reducing devices which constitute the subject of my invention. Fig. 3 is a plan of the same with the upper shaft removed. Fig. 4 is a perspective view of the hammer detached.

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

My invention consists in the combination of a fixed anvil, a fixed die, having its face forming a right angle with the face of the anvil, a roller revolving opposite to the face of the anvil, a hammer having a reciprocating motion toward and from the face of the die, and a vibrating carrier or guide for placing the nail rod or other article to be operated upon against the face of the anvil and the face of the die alternately, the whole operating together substantially as hereinafter described to effect the reduction of the metal to the required form.

It further consists in an improved mode of operating hammers of nail machines whereby the power is applied advantageously and without racking any part of the machinery.

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

A, is a strong horizontal framing of cast iron which supports all the working parts.

B, is the anvil fitted into a vertical recess in the end of a block like piece A′, which projects inwardly from the framing, and secured firmly therein by a strong loop-bolt *a*, (Fig. 1) which passes horizontally through the framing, and is fitted with a nut *b*, outside. In the upper side of the block A′, there is formed a horizontal bed *c*, *c*, (Fig. 1) the bottom of which is flush with the surface of the anvil, and to this bed is fitted the steel die C, whose face forms a right angle with the face of the anvil, said die being secured by set screws *d*, *d*, screwing through one side of the block A′, and adjusted by a screw *g*, screwing through the framing A.

D, is the main shaft of the machine arranged horizontally over the anvil and die, in bearings *e*, *e*, upon the framing A. This shaft has opposite to the anvil a short arm D′, which carries at its extremity a cylindrical roller E, whose face is of nearly the same width as the anvil, the axis of the said roller being parallel with the axis of the shaft D, and the said roller being arranged to rotate at a proper distance from the face of the anvil, and the said face being of proper form for giving the desired vertical thickness and form to the nail or article to be forged. At the side of the arm D′, farthest from the die C, the shaft D, is furnished with an eccentric D^2, (Fig. 1) for operating the hammer F G, and with other eccentrics D^3, D^3, to counterbalance the eccentric D^2.

The principal portion F, of the hammer consists of a casting whose form is better explained by the perspective view, Fig. 4, of the drawing than it can be by any description. It is arranged to swing between two center points *f*, *f*, (Fig. 2) whose common axis is parallel, and nearly in the same plane with the face of the die C, which plane is perpendicular to the axis of the main shaft. The operating face of the hammer is on the steel die G, which is nearly a counterpart of the fixed die C, and is arranged to face that die. The said die G, is secured to the portion F, of the hammer by a strong wrought iron strap *h*, the legs of which are screwed and pass through the lower portion of the casting and are held by nuts *i*, on the under side of the latter. The forms of the faces of the two dies C, G, are such and the approach of the hammer die G, to the fixed die C, so regulated by the movement of the hammer, and adjustment of the dies that they will produce between them the requisite horizontal form and thickness of the nail or other article to be forged. The connection of the hammer with the connecting rod H, of the eccentric D′, is by means of a universal joint *j*, *k*.

I, is a guide through which the nail rod, bar, or other article to be reduced into shape, passes on its way to the anvil. This guide is attached to the upper end of a curved spring J, whose lower end is secured to an

arm K, which is secured rigidly to the framing A; and the said spring, being acted upon by a cam L, attached to the hammer, every time the latter approaches the die C, is caused to move the guide in such a manner obliquely to the faces of the anvil and die C, as to raise the rod, bar, or other article to be reduced (represented in red outline) from the anvil, and move it toward the said die. When the hammer moves back again the guide is moved back again by the elasticity of the spring and caused to carry the rod, bar, or other article to be reduced away from the die C, and deposit it on the anvil. This movement is to prevent the formation of fins on those corners of the nail or other article, which are produced between the anvil B, and the hammer F, G, and between the roller E, and the fixed die C.

The operation is as follows: The shaft D, being set in motion the eccentric gives to the hammer F G, a vibrating movement which is so timed relatively to the revolution of the roller E, that the said hammer and roller come into operation alternately on the rod, bar, or other article, which is fed into the machine, the roller striking it immediately after the guide I, has placed it upon the anvil, and the hammer immediately after it has been placed against the die C; the roller and anvil producing the vertical form and the hammer and the die C producing the horizontal form.

I do not claim the employment in a machine for forging nails or other articles of two stationary faces such as the anvil and die herein described, arranged at right angles to each other, in combination with two hammers striking at right angles; neither do I claim separately the use of a vibrating guide to remove the rod or bar from one to the other of such faces. But

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

1. The combination of an anvil B, and fixed die C, or other equivalent fixed surfaces, a roller E, hammer F, G, and a vibrating guide I, the whole operating substantially as herein described.

2. And I also claim the operation of a hammer in combination with the roller E, and anvil B, by means of an eccentric on the roller shaft, and a universal joint at the connection of the hammer with the connecting rod of the eccentric, substantially as herein described.

DANIEL DODGE.

Witnesses:
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MICH. HUGHES.