

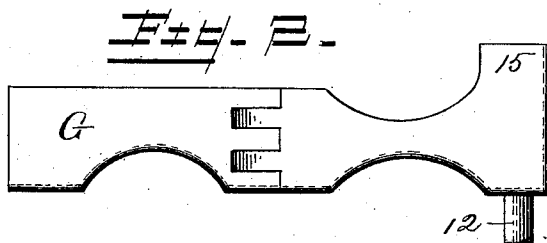
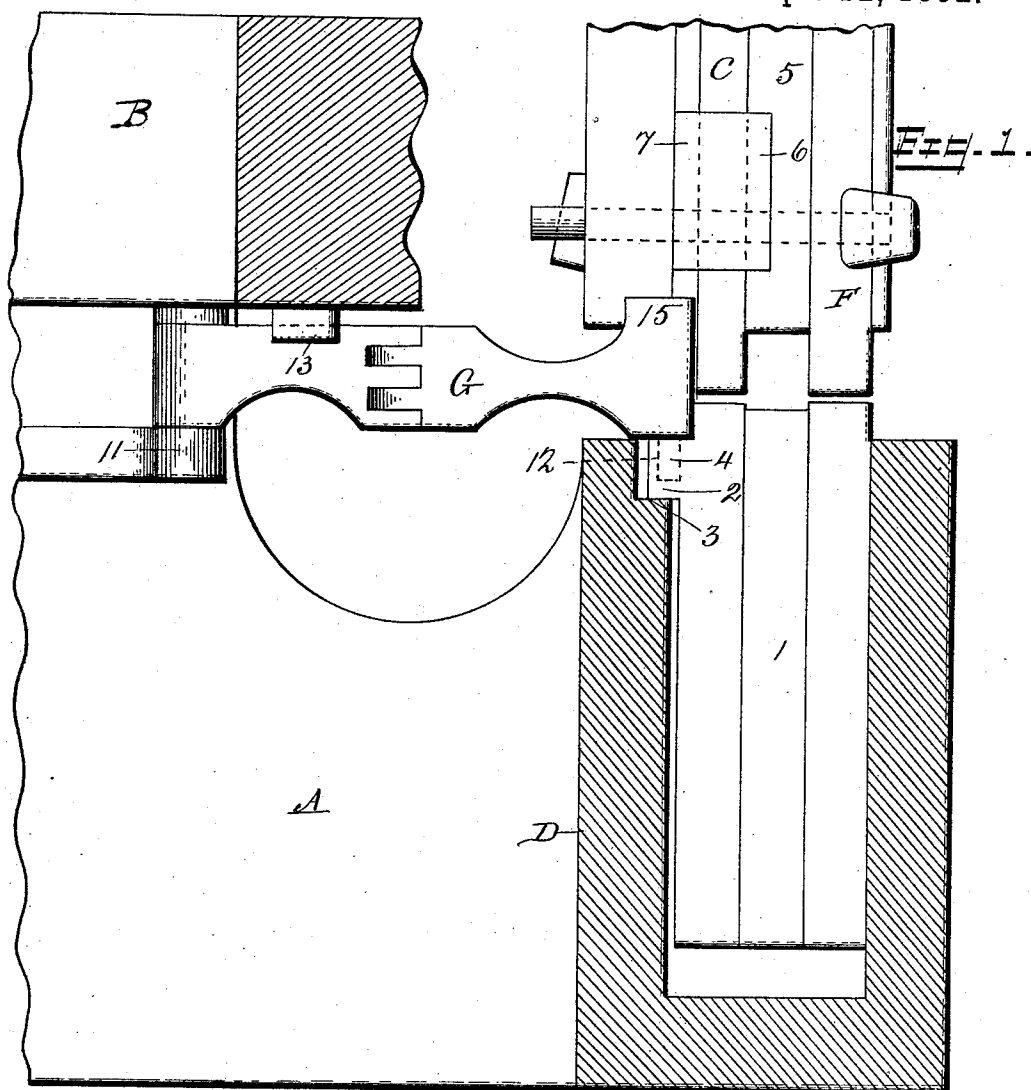
(No Model.)

4 Sheets—Sheet 1.

C. E. HOUGHTON.
NAIL MACHINE.

No. 472,605.

Patented Apr. 12, 1892.



Witnesses

Albert B. Blackwood
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(No Model.)

C. E. HOUGHTON.
NAIL MACHINE.

4 Sheets—Sheet 2.

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Fig. 4.

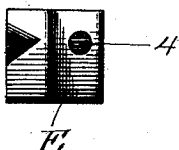


Fig. 3.

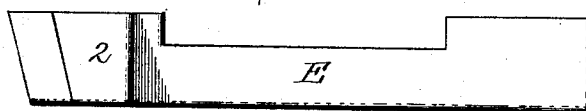


Fig. 5.

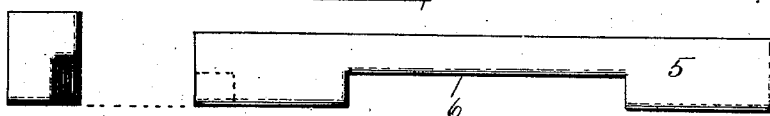


Fig. 10.

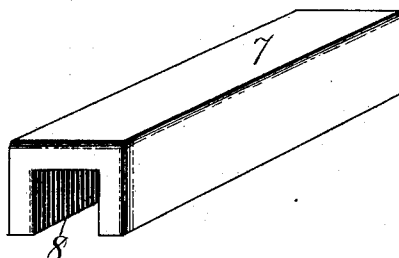
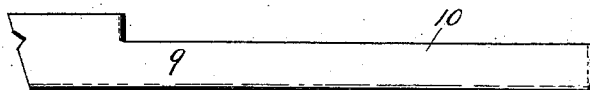


Fig. 11.



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Fig. 5.

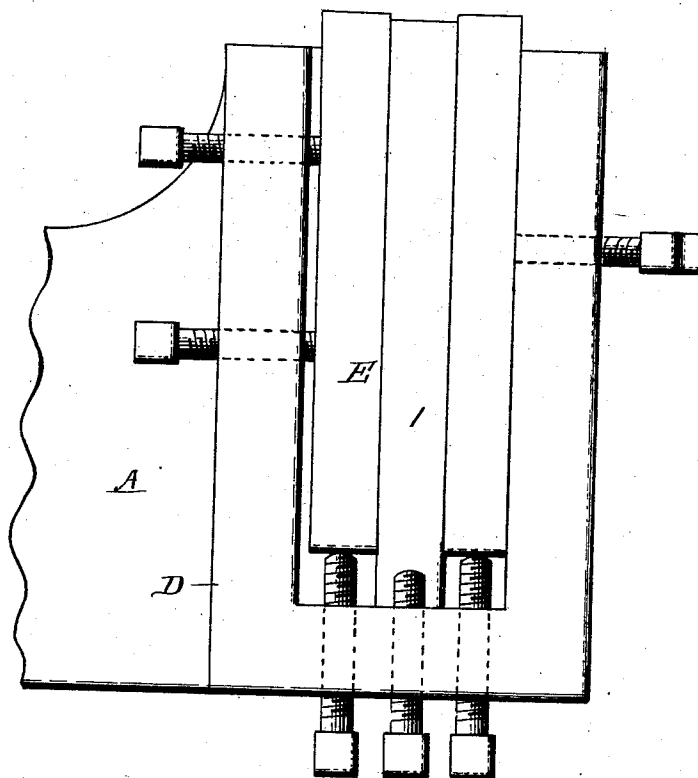
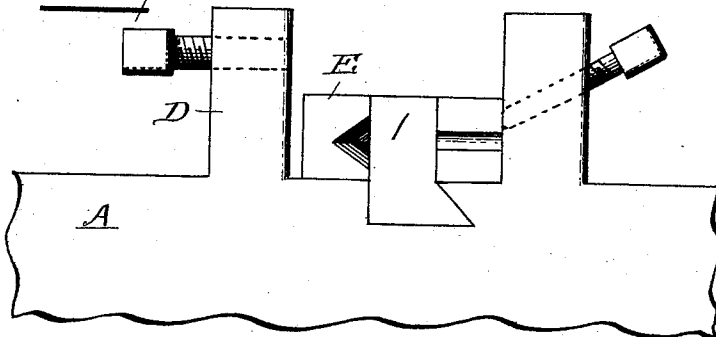


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES E. HOUGHTON, OF NORTHUMBERLAND, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO HORACE RUFUS JOHNSON, OF SAME PLACE.

NAIL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,605, dated April 12, 1892.

Application filed December 1, 1891. Serial No. 413,716. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. HOUGHTON, a citizen of the United States of America, residing in Northumberland, in the county of Northumberland and State of Pennsylvania, have invented certain Improvements in Nail-Machines, of which the following is a specification.

My invention has relation to improvements in nail-machines for cutting pointed nails from a common rolled plate, and the object is to provide efficient, simplified, and improved means for effecting the requisite lateral movements to the point-cutting dies of the machine.

My invention consists in a jointed lever arranged parallel to the axis of the cutting-jaw of the machine in connection with the point-cutting bed-die, in combination with a moving part of the machine to give the lever the requisite motion to laterally reciprocate the said die.

My invention also consists in certain details of construction, as will be hereinafter fully specified, and particularly pointed out in the claims.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is a plan view of a nail-machine having my invention applied and shown with certain parts removed or sectionized to show the improvements. Fig. 2 is a detail of the die-operating lever removed from its position. Fig. 3 is a detail of the point-cutting bed-die. Fig. 4 is an end view of the same. Fig. 5 is a plan view of the die-bed of the machine, showing the partition between the dies. Fig. 6 is an end view of the bed. Fig. 7 is a view of a modified form of die-operating lever. Fig. 8 is a view in detail of the same. Fig. 9 is a view of the liner for the moving point-cutting die. Fig. 10 is a view of the box-casing for the moving point-cutting die, and Fig. 11 is the moving point-cutting die.

A designates the bed of the machine; B, a portion of the cutting-jaw, and C the gripping-lever. These parts are of the usual construction.

D designates the chamber bed or seat for the bed-dies and knife. This chamber is generally formed with a plain smooth floor, on which the dies are arranged with liners between them. Since it is necessary to give the point-cutting dies a lateral movement, the seat in which they are disposed must be somewhat wider than the die, and it is impossible to accomplish the adjustment of the width of the seat by liners of the old style. Hence liners of special construction have to be supplied. To overcome this inconvenience and uncertainty, I cast in or secure in the floor of the bed-die a longitudinally-arranged rib or partition 1, constituting an abutment for the gripping-die proper, and also a liner for the same, and thus provide a seat for the point-cutting die. This rib or liner may, as stated, be cast as part of the bed, or it may be secured by a dovetail connection, as shown in Fig. 6 of the drawings.

E designates the point-cutting bed-die, consisting of a substantial bar of steel having a point-cutting face and provided near its point-cutting end with a lateral projection 2, engaging in a recess 3 in the side wall of the die-bed and having a hole 4 in the outer end of the projection, in which the end of the operating-lever engages to move the die.

F designates the moving gripping-die, and a liner on the die-seat of the gripping-lever. This liner 5 is formed with a long recess 6 in its side, in which one side of the box-casing 7 lodges and is retained. This box-casing is a long three-sided box having open ends, the channel or opening 8 between the sides constituting a seat for the point-cutting die 9, substantially as shown in the drawings, and at the same time the casing serves as an abutment or liner for the other liner and the gripping-die. The point-cutting die 9 is formed with a stem 10, the shoulder of which lodges against the end of the box-casing, substantially as shown, and holds the die against endwise displacement. The channel in the box-casing is somewhat broader than the thickness of the die, so that the latter can have the requisite lateral play in the channel when the point on the nail is being cut. I believe I am the first in the art to provide a casing of

this character for a laterally-movable die, and I therefore do not desire to limit the scope of my invention to the precise construction and arrangement shown and described.

5 G designates a jointed lever for operating the point-cutting dies. This lever is arranged parallel to the axis of the cutting-jaw of the machine, and is fulcrumed at 11, and at the inner side face of the outer arm is formed
10 with a lug or pin 12, which engages in the hole of the point-cutting bed-die, substantially as shown in the drawings. This lever is operated to laterally move the point-cutting bed-die and with it the contacting point-cutting moving die by means of a bracket 13 in
15 the cutting-jaw, which is formed with a recess to set loosely over the edge of the bracket and successively engage the upper and lower faces of the jointed lever, and thus breaking the joint effects the lateral movement of the die. The end of the jointed lever is extended laterally, as at 15, to engage the side faces of the moving point-cutting die in its inward movement and push it into normal alignment
25 with its counterpart bed-die.

In Figs. 7 and 8 of the drawings I have illustrated a modified construction of the operating-lever. In these figures, *a* designates a bell-crank lever fulcrumed to a bracket *b* on the
30 bed of the machine, the free end of the crank being pivoted to a rod *c*, having its upper end jointed to a sliding piece *d* in a keeper *e* on the moving jaw. To the bell-crank is pivoted a bar *f*, having a slot *g*, engaging a supporting-pin *h* on the bed to sustain the bar, and
35 the end of the bar is provided with a forked projection *i*, which straddles the point-cutting die. It will be perceived that as the bell-crank is moved by its connections to the cutting-jaw it will longitudinally reciprocate the bar in connection with the point-cutting die, and consequently correspondingly move that element.

The operation is as follows: The blank being severed and pushed down and engaged
45 between the dies, the movement of the lever outward gives the contacting point-cutting dies a corresponding movement and shears the point.

50 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a nail-machine, the combination of a laterally-movable point-cutting bed-die having a laterally-extended lug provided with a
55 hole, a jointed lever fulcrumed on the bed of the machine and arranged parallel to the axis of the cutting-jaw and having its free end formed to engage the hole in the die, and a lug on the cutting-jaw to operate the lever,
60 substantially as described.

2. In a nail-machine, the combination of a laterally-movable point-cutting bed-die having a hole in its end, a jointed lever arranged parallel to the axis of the cutting-jaw and having
65 its outer arm fulcrumed to the bed of the machine and its free end connected to the hole in the said die, and means on the cutting-jaw to operate the lever, substantially as described.

3. In a nail-machine, the combination, with laterally-movable point-cutting bed and moving dies, of a lever arranged parallel to the axis of the cutting-jaw of the machine and having one portion of its free end connected
75 to the said point-cutting bed-die and arranged to bear against the point-cutting moving die, substantially as and for the purpose specified.

4. In a nail-machine, the combination, with laterally-movable point-cutting dies, of a liner
80 formed with a recess in its side face, and a box-casing to fit the recess in the liner and having a channel wider than the point-cutting die in the channel of the box-casing, substantially as described.

5. In a nail-machine, the combination of a laterally-movable point-cutting die, a box-casing on the die, having a recess or channel wider than the die, and a liner to hold the box-casing in position, substantially as and
90 for the purpose specified.

6. In a nail-machine, the combination, with the die-bed of the machine, of a point-cutting die having a lateral play in its seat and a box-casing having a channel to take the die, wider
95 than the die, to set over and hold the die on the bed, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two attesting witnesses.

CHARLES E. HOUGHTON.

Attest:

A. G. HEYLMUN,
REUBEN JOHNSON.