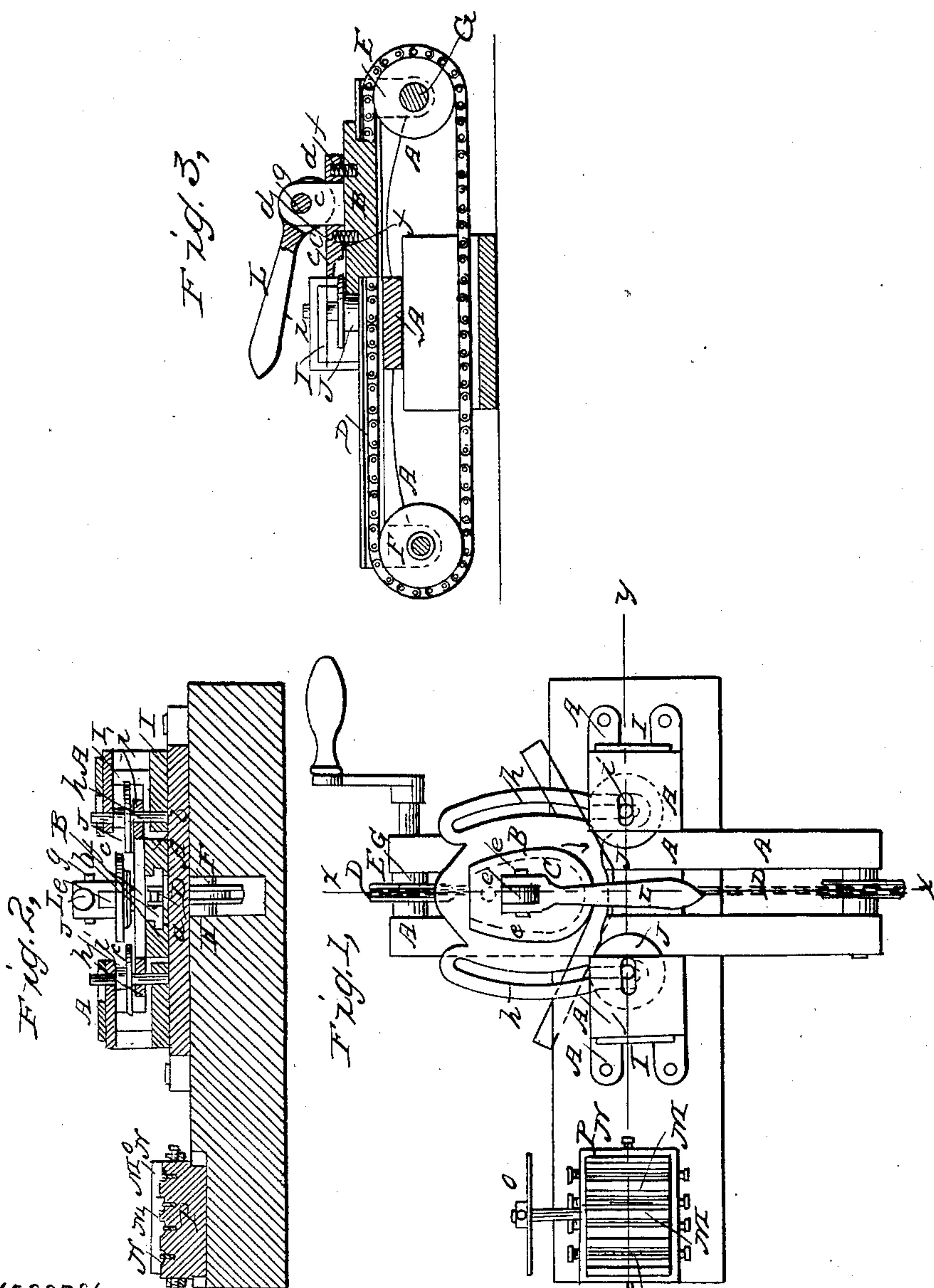


H. L. WATTS.  
Horseshoe Machine.

No. 24,596.

Patented June 28, 1859.



WITNESSES:  
Robert Kyle  
Abner Sampson

INVENTOR:  
H. L. Watts.



# UNITED STATES PATENT OFFICE.

H. L. WATTS, OF CHESTER, MASSACHUSETTS.

## HORSESHOE-MACHINE.

Specification of Letters Patent No. 24,596, dated June 28, 1859.

*To all whom it may concern:*

Be it known that I, HENRY L. WATTS, of Chester, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Machinery for Making Horseshoes; 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—

Figure 1, is a plan view of my invention. Fig. 2 is a vertical section in the plane indicated by the line  $y, y$ , in Fig. 1. Fig. 3 is a vertical section in the plane indicated by the line  $x, x$ , of Fig. 2.

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

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

A, is a bedplate or horizontal frame which carries the working parts of the machinery.

B is a carriage to which the die C, for forming the interior of the shoe is attached, said carriage resting and traveling on a planed surface provided for it on the bedplate A, and being confined thereto by tongs  $a, a$ , on its sides fitting to grooved ways  $b, b$ , provided in the bedplate.

D, is an endless chain for driving the carriage B, said chain running around two wheels E, and F, secured to shafts G, H, at opposite ends of the ways on which the carriage travels, the shaft G, being the driving shaft.

The die C consists of a plate of the intended form of the interior of the shoe to be made, having a flanch  $c, c$ , of corresponding form and of a width nearly equal to the width of the iron of which the shoe is to be composed. The depth of the die below this flanch is just equal to the intended thickness of the shoe. The flat bottom of the die fits to the flat surface of the carriage B, and the die has a vertical slot  $d, d$ , through its center to receive a stationary upright  $e$ , which projects upward from the carriage and which carries the fulcrum  $g$ , of an eccentric lever L, by which the die can be secured closely to the carriage. Beneath the die there are applied two springs  $f, f$ , to raise it from the carriage when released from the pressure of the eccentric lever H.

The carriage B, contains two slots  $h, h$ , at equal distances from the die C, and on opposite sides thereof; a short portion of each of said slots commencing at their front extremities and terminating opposite the front of the die, being straight and parallel with the direction in which the carriage moves, and the remainder corresponding in form with the sides of the die. These slots, which are to effect the movements of the side followers I, I, and forming rollers J, J, receives portions of the axles  $i, i$ , of the forming rollers, which axles are fitted to bearings in the side followers. The side followers are fitted to slide at right angles to the movement of the carriage B, in suitable boxes K, K, cast with or bolted to the bedplate.

The iron of which the shoes are to be made by the above-described machinery is cut to the proper length from bars of suitable size, and before being introduced to the machine is heated and swaged to the required form throughout its whole length.

I have represented, attached to the side of the machine, a suitable set of swages M, M, N, N, for this purpose and for punching the holes, secured in the block P, which is fitted with an adjustable gage Q, and intended to have a trip-hammer operating above it. The pieces of iron, after having been swaged to the suitable form, if not still sufficiently hot, are re-heated and placed singly across the front of the die C, and behind the forming rollers J J, while the carriage is stationary and the die is held up by the springs  $f, f$ . The lever L, is then moved to bring down the die, and after that is done the shaft G, is operated to move the carriage forward, viz. in the direction indicated by the arrow upon it in Fig. 1, which movement driving forward the piece of iron (represented in red color in Fig. 1,) between the rollers J, J, bends it closely around the die C, to the desired form. The carriage is then run back, and while it is running back the lever L is raised to liberate the die C, which is then raised by the springs  $f, f$ , to liberate the shoe, and permit its removal by a pair of tongs. As soon as the carriage has moved back far enough, another piece of iron is put in, and the movement of the carriage reversed to repeat the operation. Whenever it is necessary to change the form given to the shoe it is only neces-

sary to remove the slotted carriage B, which is merely a flat plate and substitute another having slots so made as to impart the form desired to the shoe-blank.

5 Having described my invention I claim and desire to secure by Letters Patent,  
The arrangement and combination of the

slotted carriage B, the die C, the followers I, and the rollers J, as and for the purpose herein shown and described.

H. L. WATTS.

Witnesses:

FORBES KYLE,  
ABNER SAMPSON.