C. P. Williamson.

Horseshoe Mach.

No. 93,778. Patented Aug. 17, 1869.

Fig. 3.

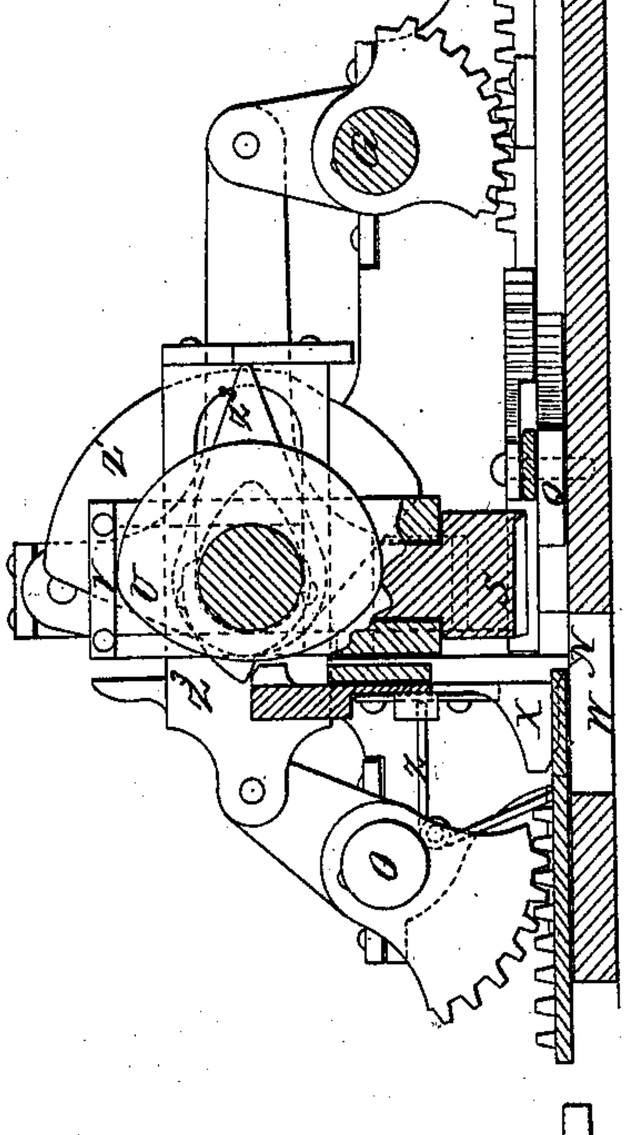


Fig. 4.

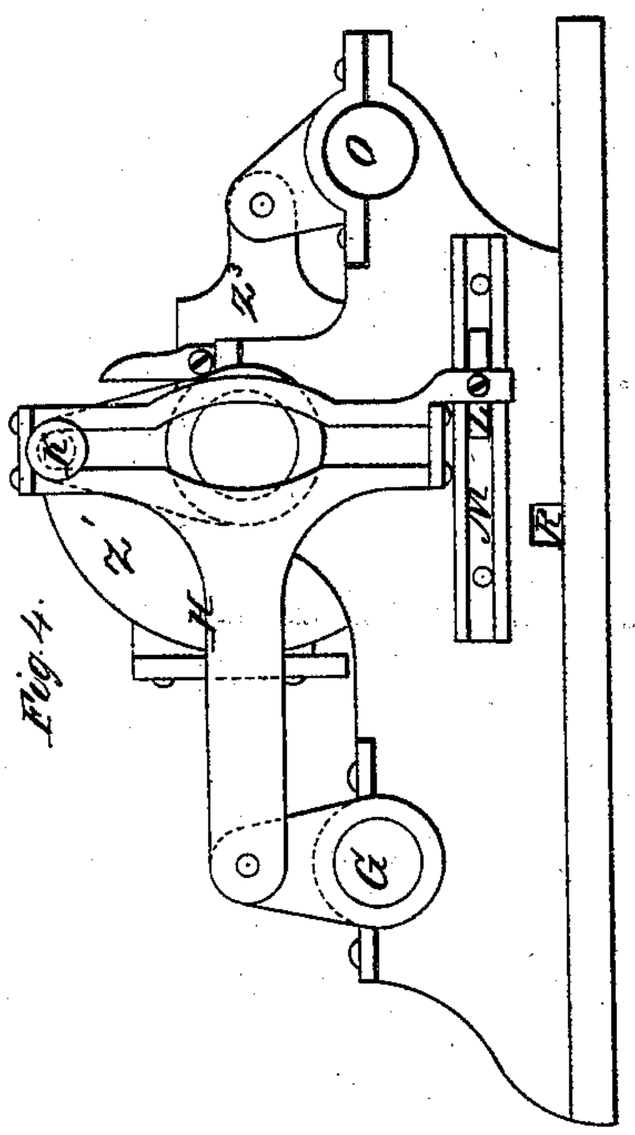


Fig. 1.

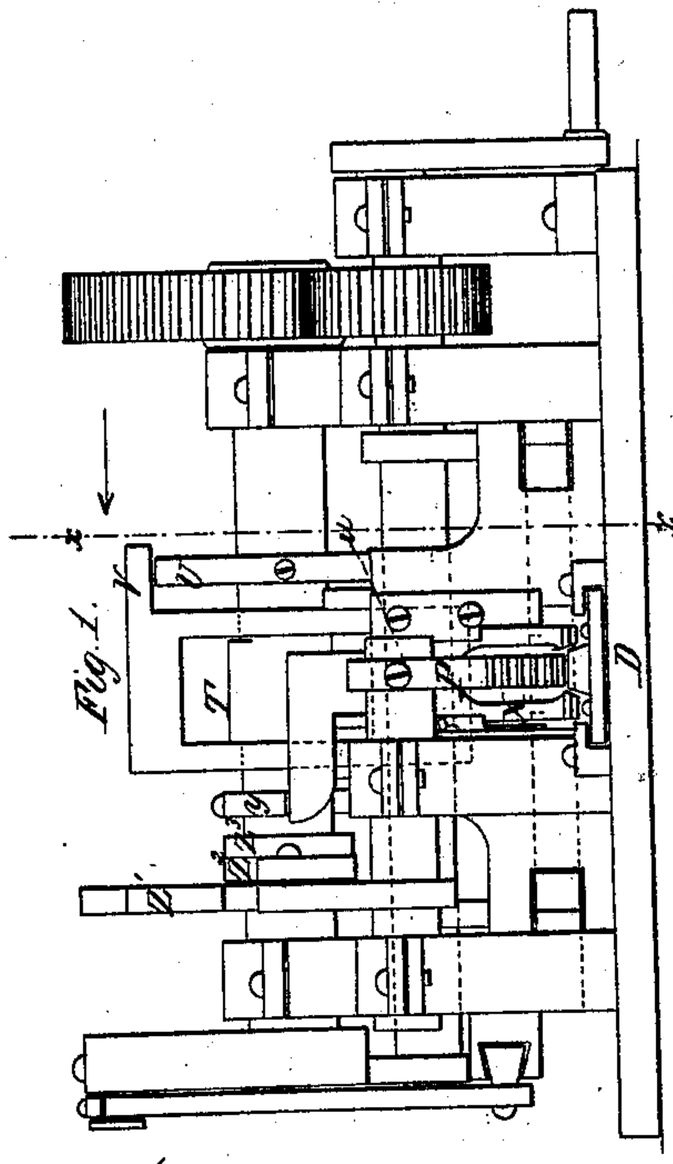
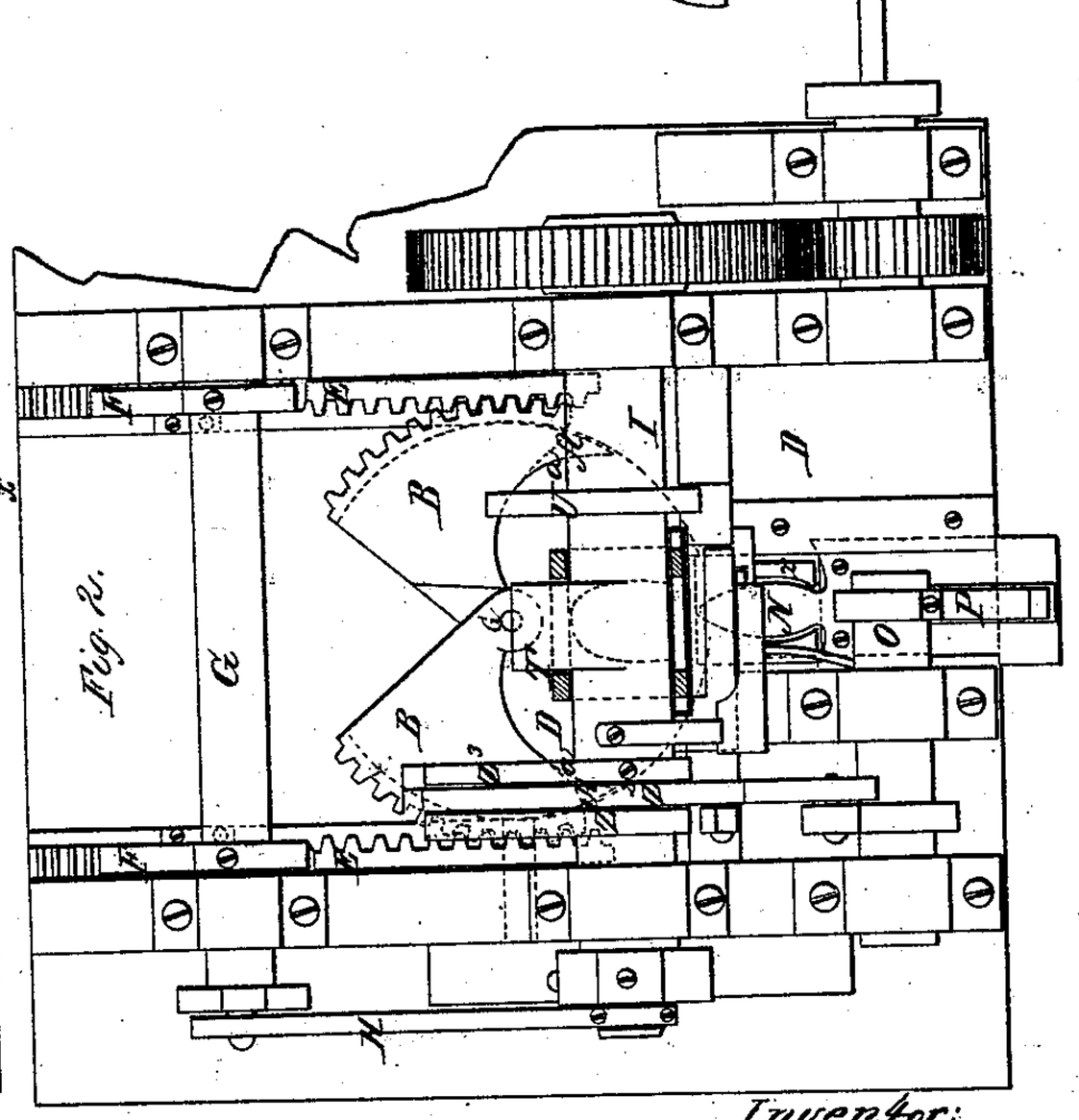


Fig. 2.



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United States Patent Office.

CHARLES P. WILLIAMSON, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 93,778, *dated August* 17, 1869.

IMPROVED HORSESHOE-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES P. WILLIAMSON, of Louisville, in the county of Jefferson, and State of Kentucky, have invented a new and improved Horseshoe-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in machinery for forming horseshoe-blanks, and has for its object to provide a simple and efficient arrangement of means for the purpose.

The invention consists in an improved arrangement of oscillating bending-dies, a sliding former, pressing and creasing-die, and discharger, all as hereinafter more fully specified.

Figure 1 represents a front elevation of my improved machine.

Figure 2 represents a plan view of the same.

Figure 3 represents a sectional elevation, taken on the line *x x* of fig. 1, looking in the direction of the arrow, and broken out on the dotted line *y y*.

Figure 4 represents a side elevation.

Similar letters of reference indicate corresponding parts.

A represents a pair of curved bending-dies, having the curvature at *a* of the exterior lines required for the shoes.

These dies are connected to the segmental toothed carriers B, pivoted at C, to a centre common to both, and carrying the said dies upon the face of the bed D of the machine.

The carriers are geared with sliding racks E, which are moved back and forth by segmental toothed wheels F on a transverse oscillating shaft, G, deriving motion from the main driving-shaft I, by a connecting-rod, H, having a slotted connection with the wrist-pin K of the crank on the main shaft I, and a guide, L, working in a groove, M, at the side of the machine.

The said slot, wherein the wrist-pin works, is so formed as to permit the dies to dwell after bending the blanks until a creasing and pressing-punch acts upon the blanks.

N represents a former, around which the bar is to be bent by the dies A.

It is shaped according to the interior form required for the shoe, and is moved forward at the proper time by the oscillating shaft O and toothed segment P, nearly to a fixed block or die, Q, at the axis of the dies A.

The bar, preferably cut into the lengths required for the shoes and heated, is inserted through the hole R, and in advance of the dies A and block Q.

The former N then moves up and clamps the bar against the said block Q, to prevent twisting or moving out of place, and then the bending-dies are set into motion, and bend the bar up snugly around the former N.

These bending-dies hold the blank in this position until the pressing and creasing-punch S is forced down upon the top to press and crease it.

This movement of the die or punch is effected by a cam, T, on the shaft I, which is directly above the punch S, the stock of which is slotted for the shaft to pass through it. It is also slotted in the opposite direction, to give freedom to the said cam T.

This said stock is raised after the pressing and creasing-operation by another cam, U, on the same shaft, taking under a projection, V, from one side of the top of the stock.

This cam gives the stock a further upward movement than could be done by the cam T, which, to be sufficiently powerful to do the pressing and creasing, is necessarily short.

Its shape is also required to be such as to perform the operation quickly, while it is required that the cam U shall be so shaped as to hold the stock out of action for a considerable part of the time of one revolution.

After the pressing and creasing-operation, the dies A open, the stamp S rises, and the former N retreats, with the blank adhering to it, over an opening, W, in the base-plate and under a discharger, X, which is forced down by a tappet, Y, on the shaft I, knocking the blank off through the said opening. This discharger is thrown back by a spring, Z.

The oscillating shaft O is operated from the main shaft I, by two cams, Z^1 and Z^2, and a connecting-rod, Z^3, yoked around the shaft I.

The heated bar may be fed in without cutting off, and be cut by one of the dies A, but I prefer first cutting it.

Adjustable stops may be arranged to arrest the bars at the right position relatively to the dies A.

These dies are so connected to the carriers B as to be readily detached for the substitution of others of different sizes.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The curved detachable dies A, die-carriers B, die-block Q, and reciprocating former N, combined, constructed, and arranged substantially as specified.

2. The combination, with the dies A, of the former N and die-block Q, when arranged and operated substantially as specified.

3. The arrangement of the reciprocating former N and discharger X, substantially as specified.

4. The arrangement of the stock of the pressing-die S, cam T, and cam U, for operation in the order specified.

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