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Roll for Forming the Eyes of Picks, &c.

No. 161,188. Patented March 23, 1875.

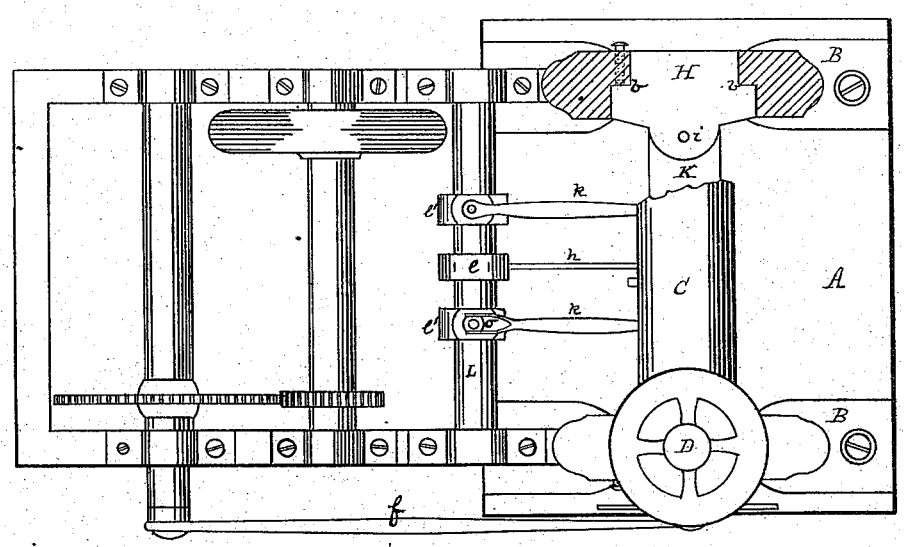

Fig. 1.

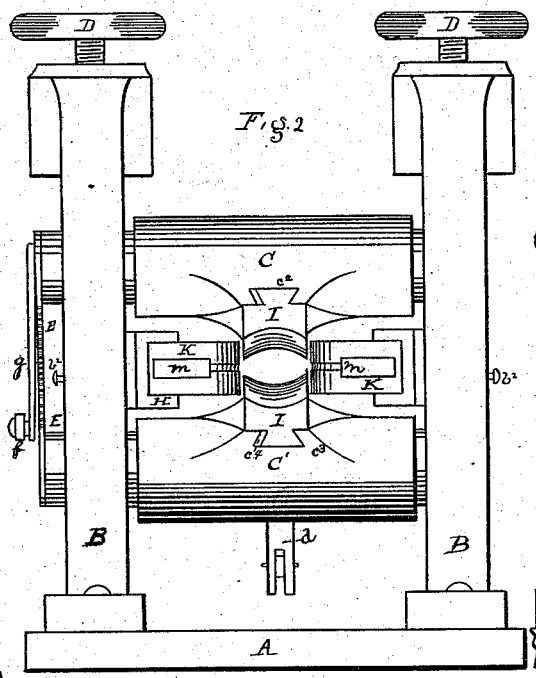

Fig. 2

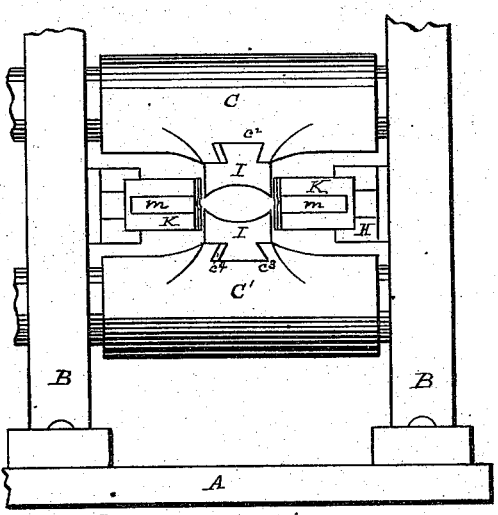

Fig. 3.

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Fig. 4

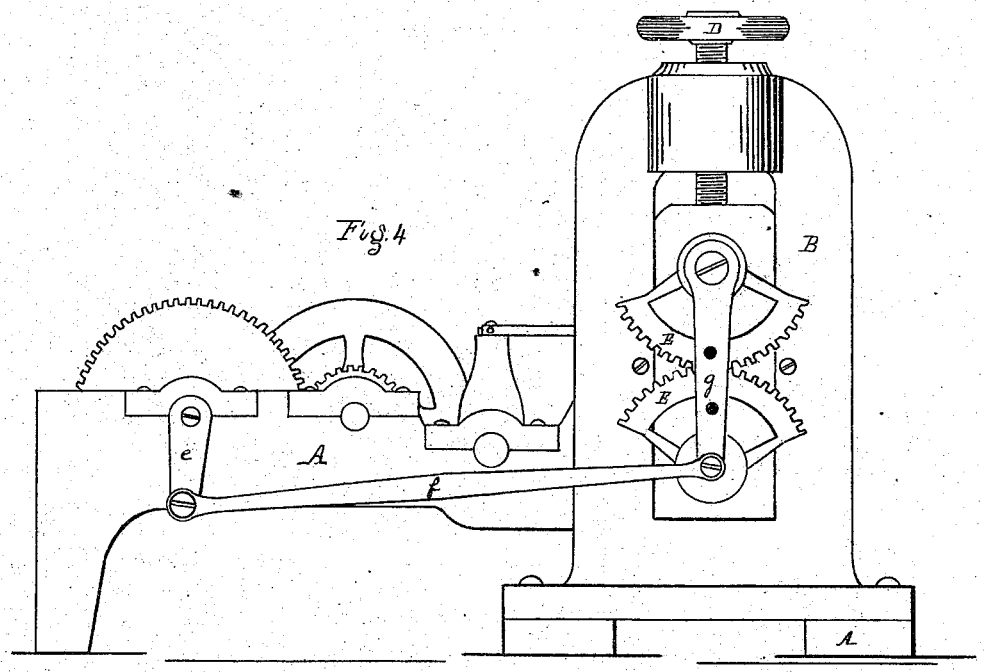

Fig. 5.

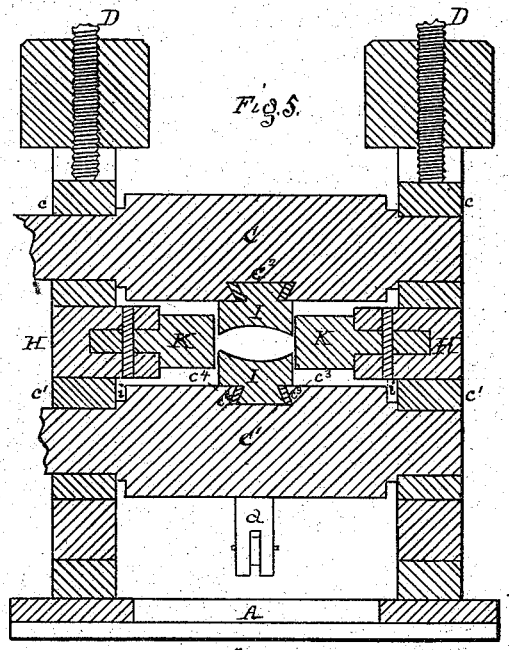

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Fig. 6.

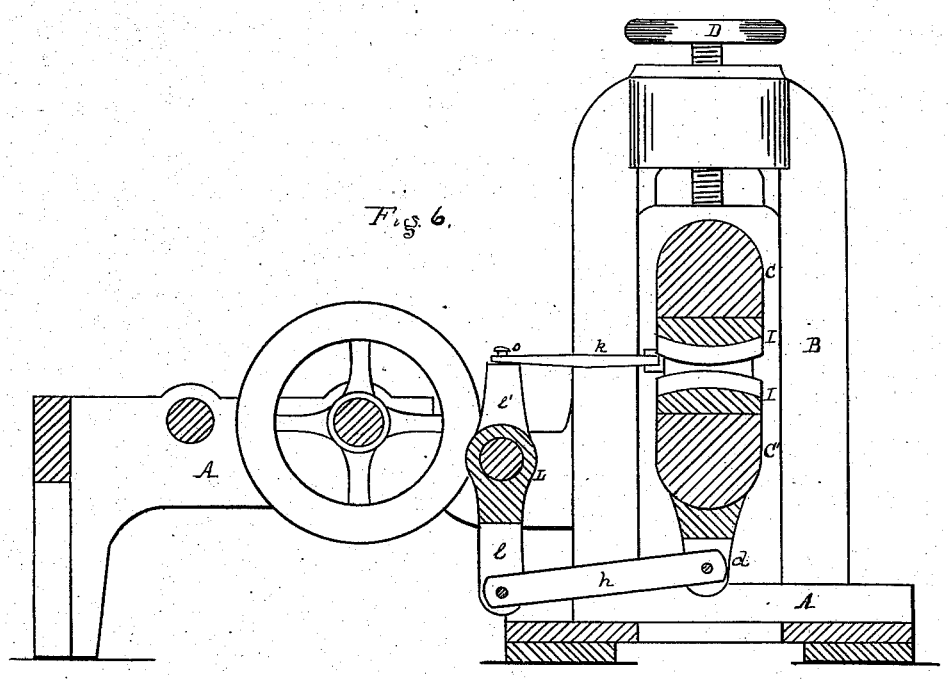

Fig. 7

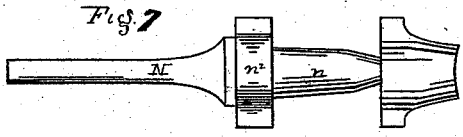

Fig. 8

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UNITED STATES PATENT OFFICE.

WILLIAM WÜSTENHAGEN AND JOHN BESLER, OF PITTSBURG, PA.

IMPROVEMENT IN ROLLS FOR FORMING THE EYES OF PICKS, &c.

Specification forming part of Letters Patent No. **161,188**, dated March 23, 1875; application filed January 12, 1875.

To all whom it may concern:

Be it known that we, WILLIAM WÜSTENHAGEN and JOHN BESLER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Horizontal and Vertical Movements for Dies for Forging Picks, Axes, &c; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a plan view of a machine embodying our invention. Fig. 2 is a front view with the dies open; Fig. 3, a similar view, the dies being closed. Fig. 4 is a side view. Fig. 5 is vertical transverse section. Fig. 6 is a vertical longitudinal section; and Fig. 7 is a mandrel and sliding stripper. Fig. 8 is a blank.

Like letters refer to like parts wherever they occur.

We will now proceed to describe the invention, so that others skilled in the art may make and use the same.

In the drawings, A represents the bed or table for supporting the power-shafting, provided at one end with housings B, in which are journaled the oscillating rolls or die-carriers. This housing B is generally recessed or shouldered, as at *b*, and provided with set-screws b^2, which bear upon the adjustable pivot-bearing, by which means the position of the bearings and dies may be controlled. C indicates the upper and C′ the lower of two oscillating rolls or die-carriers, having their bearings in the boxes *c* c^1 of housing B, and raised or lowered by the usual housing-screws D. At the points c^2 c^3 on these die-carriers are dovetailed recesses for the purpose of connecting the horizontal dies I, which may be secured and adjusted by means of keys c^4 or similar devices. The oscillating rolls C C′ are geared at one end by the segments E, the upper roll being driven from the power-shaft through crank-arms *e f g*, and the lower roll communicating motion to the lateral dies through an arm or rod, *h*. H H represent pivot-bearings, secured in the housings B between the boxes *c* c^1 of rolls C C′, and are controlled by set-screws b^2, so that they can be made to approach or recede from each other, according as the lateral dies require adjustment. To these bearings the lateral dies K are pivoted, as at *i*, so as to move in unison with the horizontal dies I, the dies K being operated from the lower oscillating roll C′ through the lever *d*, rods *h k k*, and rock-shaft L, the rods *k k* being connected to the levers *l′ l′* of the rock-shaft by universal joints *o*, so as to permit a lateral as well as longitudinal movement, said form of gearing being required by the movement of dies K. L is a rock-shaft journaled in the bed or table A, and provided with levers *l′ l′* and *l*, by which it is connected to the lower and lateral dies by suitable rods. The arm *g* and levers *d* and *l* are provided with means for adjusting the connection of the rods *f* and *h*, so that the throw of the oscillating rolls and the travel of the horizontal and lateral dies may be varied.

The dies shown in connection with the oscillating carriers are dies for forging and forming the eyes of picks, and consist of two horizontal dies, I I, having faces concave from side to side, and slightly convex from end to end, while the lateral dies K K are convex from end to end, and grooved slightly along the middle, and are recessed, as at *m m*, along the front edge to receive the arms of the blank. The dies I I are dovetailed to the oscillating rolls or carriers C C′, and the dies K K are pivoted or hinged to the pivot bearing-blocks H H, as before specified.

In presenting the blank to the dies a mandrel is used, of the form shown in Fig. 7, and may be described as follows: It consists of a rod or shaft, N, having an enlargement, *n*, at one end corresponding in form to the inside surface of the eye to be formed, and is provided with a stripper, n^2, sliding upon the shaft N, and may be forced down to drive or strip off the finished article from the mandrel. As the stripper bears evenly upon the article to be removed there is no liability of disfiguring the article. The gear-wheel of the driving-shaft is provided with a clutch of any approved form for the purpose of starting and stopping the machine.

The operation of these devices is as follows: Motion being imparted through the power-shaft and connecting-rods to the oscillating

rolls, and from them to the lateral dies, the movement in one direction opens the dies to the position shown in Fig. 2, at which time a blank, (shown in Fig. 8,) previously heated held upon the mandrel N, is presented by the operator and seized by the dies, which, on their return movement, draw out, forge, and form the eye, discharging the article at the point of entrance on the next oscillation of the carriers, or the blank may be entered when the dies are in the position shown in Fig. 3, and will be drawn and formed by the dies in changing to the position shown in Fig. 2.

If the lateral dies I I of Fig. 2 are employed, and a pick is being formed, the projecting portions of the pick will be received into the recesses *m*. The steel may be welded on and the points finally drawn out in the usual way.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination of the oscillating rolls or die-carriers C C′, geared by segments E, and driven by suitable power, and the lateral pivoted dies K K, the latter operated from the former by means of rock-shaft L and rods or arms *h k k*, substantially as specified.

2. The combination of oscillating rolls or die-carriers C C″ having dies I I, pivot-bearings H H, having dies K K, and suitable mechanism for operating the same, substantially as and for the purpose specified.

3. Mandrel N, provided with a sliding stripper, n^2, substantially as and for the purpose specified.

In testimony whereof we, the said WILLIAM WÜSTENHAGEN and JOHN BESLER, have hereunto set our hands.

WILLIAM WÜSTENHAGEN.
JOHN BESLER.

Witnesses:
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T. B. KERR.