# L. Anderson,

## File-Cutting Machine,

No. 2,365. Patented Nov. 16, 1841.

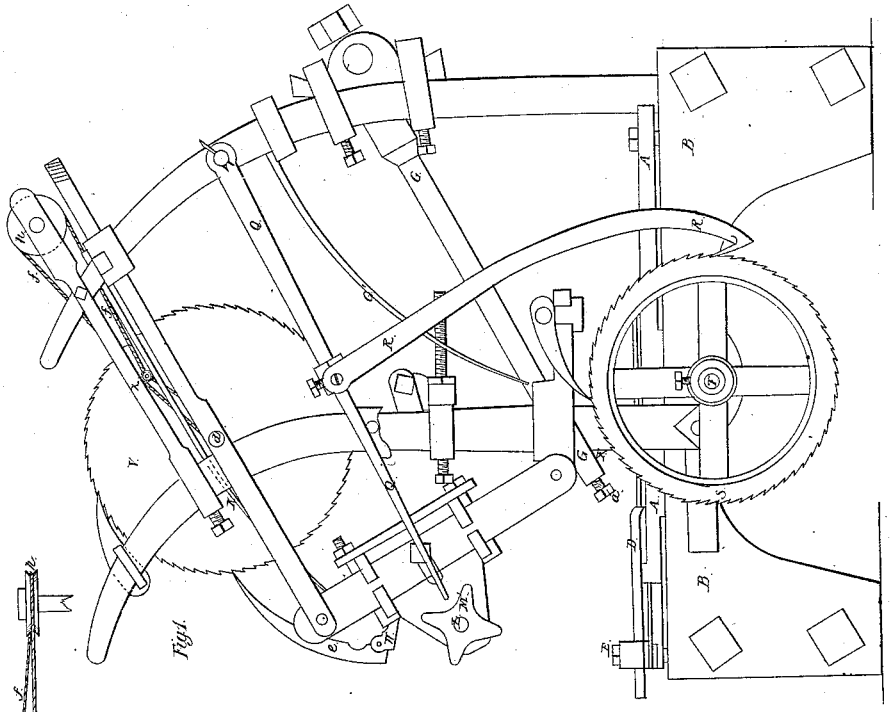

Fig. 1.

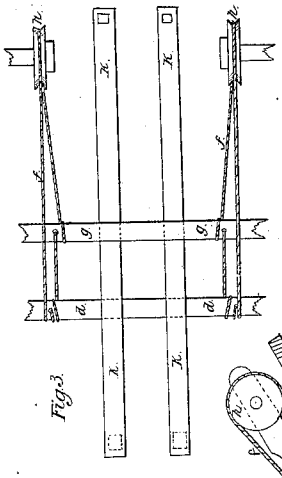

Fig. 3.

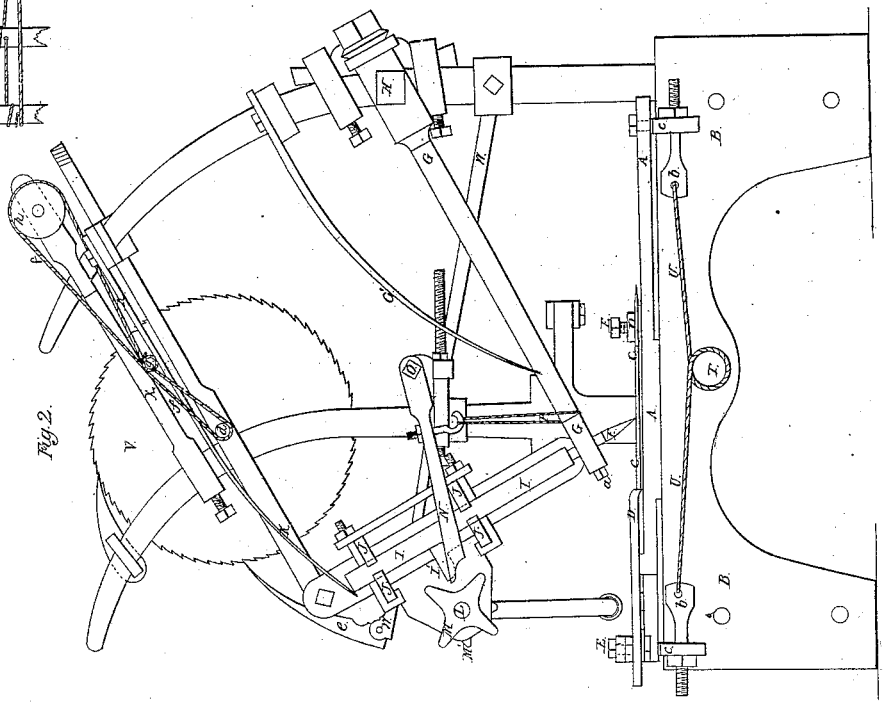

Fig. 2.

# UNITED STATES PATENT OFFICE.

LEVI ANDERSON, OF KENSINGTON, PENNSYLVANIA.

## MACHINE FOR CUTTING FILES.

Specification of Letters Patent No. 2,365, dated November 16, 1841.

*To all whom it may concern:*

Be it known that I, LEVI ANDERSON, of Kensington, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Machines for Cutting Files; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing, Figure 1, is a side view of the machine, and Fig. 2, a vertical section along it from front to back.

The file to be cut is placed upon a sliding bed or anvil A, A, which runs upon ways upon a firm bed B, B, which bed makes a part of the frame.

C, C, represents a file the two ends of which are pressed upon by rods of iron D, D, held down by tightening screws E, E.

F, F, is a chisel passing through a mortise in the end of an arm, G, G, and is held by the tightening screw *a;* the arm G, G, turns on a fulcrum pin at H, and is borne upon by springs G′.

I, I, is a hammer which is guided up and down by the bars J, J; these bars have notches cut in them forming sockets for that purpose. The top of each of the hammers is borne upon by a steel spring K, K; the pressure of this spring upon the hammer, and consequently the force with which it will strike upon the chisel, is to be regulated in a manner to be presently described, and constituting one of my improvements in this machine.

Motion is to be given to this machine by the revolution of a horizontal shaft, the end of which is seen at L, L; this shaft carries lifters, or clippers, M, M, serving to raise the chisels and hammers at the proper time. The number of chisels and hammers in one machine may vary, but they are all to be operated upon in the same way, and the description of one will suffice, therefore, for the whole. A finger I′, projects out from the hammer for the clippers to act against in raising it. The lever marked N, I denominate a hand, its use being to lift the chisel; the hand works on a fulcrum pin at O. A band, or cord, P, attached to the hand N, and to the chisel arm G, serves to raise the latter when the former is lifted. The clipper M, which raises the hammer operates a little in advance of that which raises the chisel, and retains it in its lifted state until the latter has descended and rests upon the file.

Upon one end of the horizontal shaft L, is the clipper, or lifter M′, which as it revolves lifts the ratchet arm Q, Q, and raises the feed claw R, R, and this turns the ratchet wheel S, fixed upon the shaft T, which advances the file. A band U, U, Fig. 2, passes around this shaft, and is fastened at its two ends to loops *b*, *b*, that are attached to studs *c*, *c*, the latter of which are firmly affixed to the sliding anvil A, A, by which the file is advanced in a degree regulated by the feed claw R, R.

I have essayed the feeding by means of a rack and pinion and also by means of a chain, but have ascertained that a band properly prepared is to be preferred. The band which I use I make of partially tanned buffalo hide; after cutting this into strips of the proper size I stretch it while wet, and saturate it with linseed oil; by this mode of preparation it is secured from being acted upon by moisture, and when applied to use works pleasantly and equally; its tension is easily regulated by set screws and rarely needs alteration. The anvil and bed B, are not in a line with the upper part of the machine which sustains the chisel and other parts, but forms an angle therewith equal to that which is to be given to the cut of the file.

Instead of moving the anvil A, A, a like effect may be produced by confining the files in a sliding frame, so as to allow them to bear upon a stationary anvil, such frame being moved in the same way in which the anvil is described as being moved.

A ratchet wheel V, stands on the side of the machine opposite to that shown in Fig. 1, and revolves upon an angle *d*, a top view of which is given in Fig. 3. The ratchet wheel V, is made to turn by means of the feed hand *e*, on the end of the arm W, W; said arm being lifted by a clipper, or lifter, on the end of the shaft L, not seen in the drawing but similar to that shown at M. The shaft *d*, *d*, has two bands *f*, *f*, attached to and winding round it; these bands are also attached to a sliding bar *g*, *g*, and they pass respectively around pulleys *h*, *h*, which revolve on journals in the upper part of the frame. By this arrangement, the bar *g*, *g*, is carried forward by the turning of the

wheel V, the bar $g$, $g$, slides upon the spring K, its ends being guided by bars X, on each side of the frame. When the bar $g$, $g$, is near to that end of the spring which bears upon the hammer, the latter will strike with its greatest force, and as the bar recedes from the hammer the force of the blow will be proportionately decreased, and this occurs as the narrower parts of the file are brought under the chisel. When the chisel is cutting upon that part of a file which varies but little in width, the feed hand $e$ is thrown off, and the force of the blows will then be equal, and in this way they may be readily regulated.

Having thus, fully described the construction and operation of my machine for cutting files, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The manner of regulating the force of the blow by means of the varying length of the springs which bear upon the hammers such variation in length being produced by the sliding bar, under an arrangement of parts substantially the same with that herein described.

2. I also claim the manner of lifting the chisels by means of a band attached to the hand N, and the arm G, in combination with the striker, as set forth.

LEVI ANDERSON.

Witnesses:
THOS. P. JONES,
M. E. JONES.