2 Sheets—Sheet 1.

S. WHIPPLE.

MACHINE FOR CUTTING FILES.

No. 3,914. Patented Feb. 12, 1845.

Fig. 7.

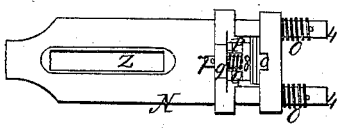

Fig. 6.

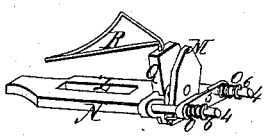

Fig. 2.

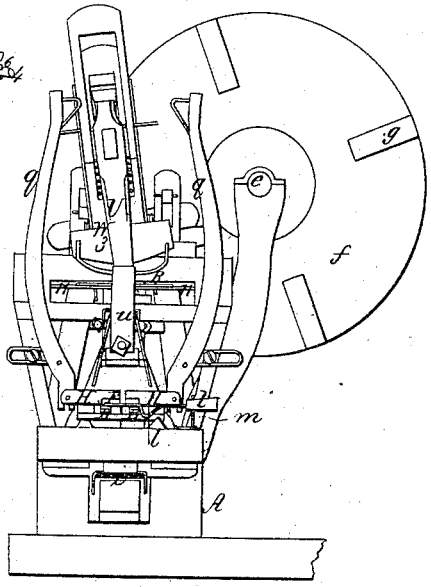

Fig. 8.

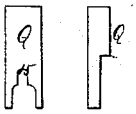

Fig. 5.

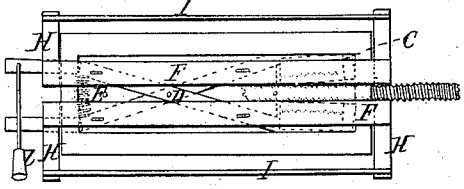

Fig. 1.

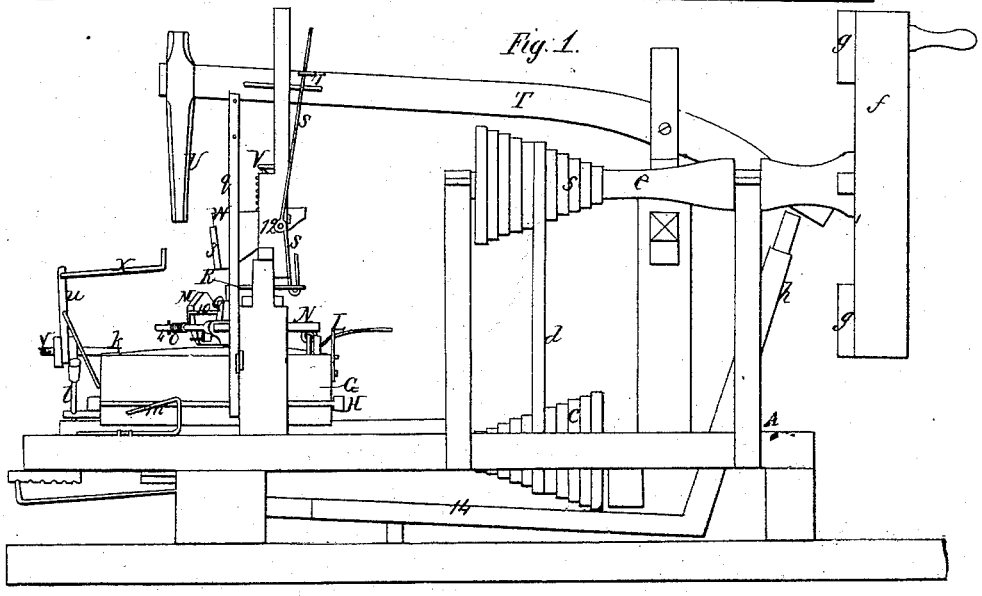

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Fig. 3.

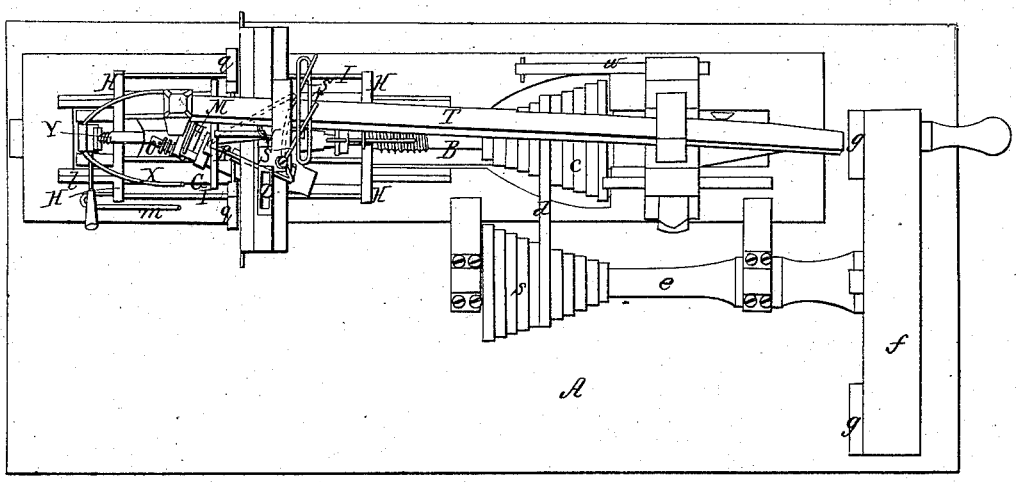
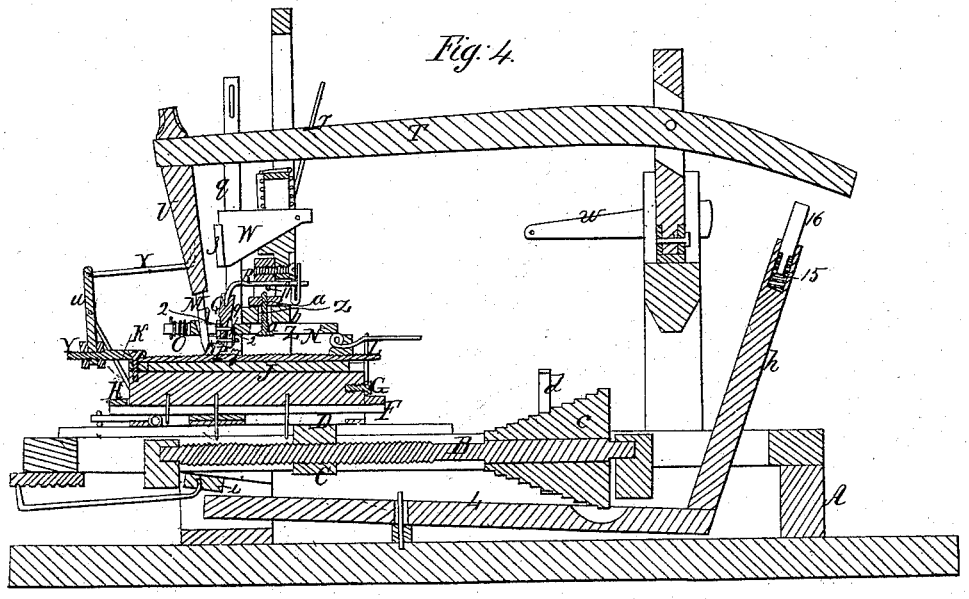


Fig. 4.



UNITED STATES PATENT OFFICE.

SOLOMON WHIPPLE, OF ALBANY, NEW YORK.

MACHINE FOR CUTTING FILES.

Specification of Letters Patent No. 3,914, dated February 12, 1845.

To all whom it may concern:

Be it known that I, SOLOMON WHIPPLE, of the city and county of Albany and State of New York, have invented a new and useful Improvement in Machines for Cutting Files, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the machine. Fig. 2 is an end elevation of the same, Fig. 3 is a top or bird's eye view of the same. Fig. 4 is a vertical longitudinal section through the center of the carriage-tool stock, hammer, &c. Fig. 5 is a horizontal section through the carriage, showing the cross levers, &c. Fig. 6 is a perspective view of the tool stock, &c. Fig. 7 is a view of the underside of the stock or frame, &c. Fig. 8 is a front and side view of the upright piece of iron Q.

Similar letters refer to corresponding parts.

The frame A of this machine is made of iron of sufficient substance to prevent any jar, and consists of two longitudinal ways or rails, connected together as far as the carriage moves, and at the opposite end, and supported above the floor on a stone foundation resting on the ground.

Between the two longitudinal rails of the frame and parallel with the same, is arranged a horizontal shaft B, on which is formed a screw, which works in a female screw formed in a pair of jaws C. These jaws are secured to the ends of two cross levers D connected together by a pin, where they cross each other, and near their opposite ends by a spiral spring E, arranged crosswise between them. This spring is for the purpose of throwing the female screw in the jaws, out of gear with the screw formed on the horizontal shaft, when said jaws are unclamped. The cross levers D, are secured to the underside of two horizontal bars F, arranged inside the carriage G, and moving in slots or grooves formed therein having projecting bars H, attached to their ends, outside the carriage, which projecting bars, are connected together by iron rods I. In connection with each of these rods is an upright catch *q*, Figs. 1, 2, 3, 4, moving on a pin and when the female screw is thrown out of gear the catch moves under the hammer and stops it, and all parts of the machine except the tappet wheel, and screw. When the clamp is shut the catch moves from under the hammer, which falls and comes in contact with the tappets which cause the blow to be given to the tool.

The file to be cut is placed on a die J secured in a bed piece in the carriage, and secured thereto by the point entering a pair of calipers K, fitted with a screw and nut on the opposite end to hold the jaws firmly to the file, and another to hold it down on the die, having a crowning surface lengthwise the tongue end being held firmly by a lever and hook L.

The steel to be cut is to pass with the carriage (which is of sufficient weight to prevent any jar from the blow) under the tool M commencing at the tongue end. The tool is placed in the diagonal position of the intended cut across the file, above the carriage, and is secured in a stock or frame N and is held firmly in the required position by two spiral or other springs O O near its top and another P near its edges. The upper springs O O are wound loosely around two horizontal bars 4, 4, projecting from the end of the stock or frame N and passing on either side of the tool, and are compressed on said bars between a horizontal cross bar 5, moving on the bars 4, 4, and resting against the front face of the tool, and pins 6 inserted into the ends of the bars 4, 4. The lower spiral spring P, is wound around a movable pin 7 having an oblong head 8, formed on one end which rests against the back face of the tool near its cutting edge and passing through a round aperture made in a projecting ear 9 formed on the lower part of the stock or frame immediately behind the upright piece of iron Q. This lower spiral spring P is compressed on said pin between the oblong head 8, and the ear 9, and presses the head against the back face of the tool.

The upright piece of iron Q has a semi-circular scallop formed in its lower end to prevent it touching the lower spiral spring, and rests and moves on a pin 2, secured crosswise in the mortise through which the upright piece of iron passes, a slot 15, being also made in said upright piece of iron above the semi-circular scallop to admit it being placed in its proper position in the stock or frame.

The upper springs O pressing against the cross bar 5, keeps it constantly in contact with the front face of the tool, nearest the springs O, and clamps the tool between said

cross bar 5, and the heads of the movable spring pin 7 resting against the opposite face of the tool, near its lower edge, and a wire rod 10 secured to the bars and extending across the back face of the tool.

Immediately behind the tool M is the upright piece of iron Q extending from near the top of the tool, to very near the edge of the same, resting and moving on a pin 2 inserted in the stock and attached at the top by a hook to a wire rod R bent into the form of a triangle. This triangular rod R is placed above the cross piece *b* and rests on a wire rod 11 extending crosswise from one of the uprights to the other and is attached to two wire rods S. Each of these rods S is bent at one end to form a hook as represented at Fig. 1 and is secured to the side of an upright by a pin 12, passing through an opening formed in the wire rod near its lower end, which pin, being secured to the upright, forms a pivot upon which said rod moves. These rods extend up, one on each side of the hammer handle, in an inclined direction and pass through wire rings *r* secured to said hammer handle and projecting beyond the sides of the same. When the hammer is being raised, the wire rings will move the upper ends of the wire rods S forward and the lower ends in a contrary direction—the lower ends of said rods being hooked to the triangular wire R, this wire will also move in the same direction and draw with it the upper end of the upright block Q, to which it is attached by a hook and will bring the lower end of said block against the oblong head of the movable pin pressing against the tool, near its edge and draw said tool out of the cut made by the preceding blow—and when the hammer is falling the rods S will be forced in a reverse direction and the upright block Q will be drawn from the tool, and the tool will remain in a suspended state between the cross bar 5, pressed against the front face of the tool, and the wire rod 10 and movable spring pin 7 resting against the back face of said tool.

Under the hammer handle or shaft T and near the hammer U is arranged a spiral spring V, surrounding an upright pin, secured to the frame. In this pin is made an upright slot in which is placed a wedge W, upon which the spiral spring rests. A cross board 3 is fastened to one end of this wedge with which a forked rod X attached to an upright *u* secured to one end of the carriage comes in contact and pushes said wedge forward, which causes the spiral spring to raise on the pin.

The rod X is moved forward or back, on the carriage, by means of a screw and nut Y, and as the carriage moves along under the tool, comes in contact with the cross piece, attached to the wedge and moves it forward with the carriage, thereby raising the spiral spring, and gradually lessening the force of the blow as the point of the file approaches the tool, and making the cut uniform on the entire face of the file. The hammer is made to conform to the position of the tool by a wedge *w* under the axle of the same, which is firmly keyed to the bearing made for it and by which the required pitch can be given to the hammer.

In crossing the cut first made, the position of the tool and hammer must be reversed to suit any bevel desired. This is effected in the following manner. In the stock of the tool, is made an oblong slot *z*, through which is passed a screw bolt *a*, which also passes through a corresponding slot, formed in the cross piece *b* of the two uprights supporting the stock, having a nut on its upper end, by which the stock is held firmly in any required position. When it is required to alter the angle of cut on the file, the nut on the screw is loosened, and one end of the stock or frame is moved to the right or left as desired, the hook of the triangular wire rod, entering the upright piece of iron, behind the tool, forming a pivot on which said stock moves.

On the horizontal shaft B is secured a series of pulleys *c* of different sizes, around one of which is passed a band or belt *d* which extends around another pulley of a similar series *s*, to those mentioned. The last mentioned series of pulleys, are arranged on a horizontal shaft *e*, turning in boxes, secured to uprights, attached to the frame, on which shaft and at its opposite end is also secured a wheel *f*, on the inner face of which is secured a number of blocks of iron or tappets *g*, at equal distances apart, which engage with the handle of the hammer, which is faced with iron, and give the required blow to the tool.

Near the tappet end of the handle of the hammer, and under the same, is arranged an upright *h* connected with a piece of timber 14 running under the frame, the opposite end of which is moved up and down by an inclined plane slide *i* causing the upright to raise or lower under the tail of the hammer—and altering the effect of the blow in some degree—although the great difference of cut, in large or small files, must depend entirely on the weight of hammer. The upright *h*, on which the hammer shaft reacts has a screw in it betwen the two sides of the frame, intended to move it sidewise under the tail of the shaft, to any required point.

The tool may be held to the face of the file, by a weight on a lever attached to the post holding the tool and resting on each side of it below the point struck by the hammer, shaped like a fork, the two prongs coming together and extending sufficiently

far for a weight on the handle or shaft of the fork to act thereon—having a screw to shift to any required point.

The jaws *c* containing the female screw for moving the carriage forward are clamped, and unclamped, by means of a lever and hook *l* attached to one end of one of the cross levers by a staple, and hooked to the end of the opposite lever. After the whole surface of the file has passed under the tool, a handle on the end of the hook comes in contact with an inclined wire, *m* (Fig. 1) which lifts said handle and disengages the hook from the end of the cross lever, causing the jaws to open and separate from the screw shaft B, and the carriage to stop.

A socket is made in the upper end of the upright *h*, in which is placed a spiral spring 15, which partially surrounds an upright pin 16 having a shoulder resting on the top of said spring. When the upright *h* is raised the end of the hammer handle comes in contact with the pin 6 and depresses the spiral spring and when the hammer handle is disengaged from the tappets *g* on the wheel *f* the spring presses on the lower side of the hammer handle and causes the hammer to descend with an increased force.

What I claim as my invention and which I desire to secure by Letters Patent is—

1. The arrangement of the horizontal bars F crossed levers D, and jaws C, with the female screw formed therein, in combination with the catch *q*, to stop the hammer &c., horizontal screw shaft B, as described.

2. The arrangement of the triangular wire rod R and wire hooked rods S passing through slots made in the hammer handle in the manner and for the purpose described in combination with the stock or frame N upright piece of iron Q spiral or other springs O, P, for holding the tool M in the required position as described.

3. The mode of lessening the force of the blow of the hammer as the point of the file approaches the tool by means of the forked bar X secured to the upright *u* attached to one end of the frame coming in contact with the transverse board secured to the end of the wedge W, as the point of the file approaches the tool, and forcing said wedge forward which causes the spiral spring V to raise on the upright pin as described.

4. The mode of increasing the effect of the blow of the hammer, by pushing down the inclined slide *i* which acts on the end of the piece of timber 4 and raises the upright *h*, and causes the end of the hammer handle, in its descent, to come in contact with the pin, 6 resting on the spiral spring which depresses said spring, and when the handle is disengaged from the tappets *g* on the wheel *f*, the spring pressing on the underside of the handle forces it upward, and thus adds to the force of the blow of the hammer.

SOLOMON WHIPPLE.

Witnesses:
CALVIN PEPPER,
DAVID HOLT.