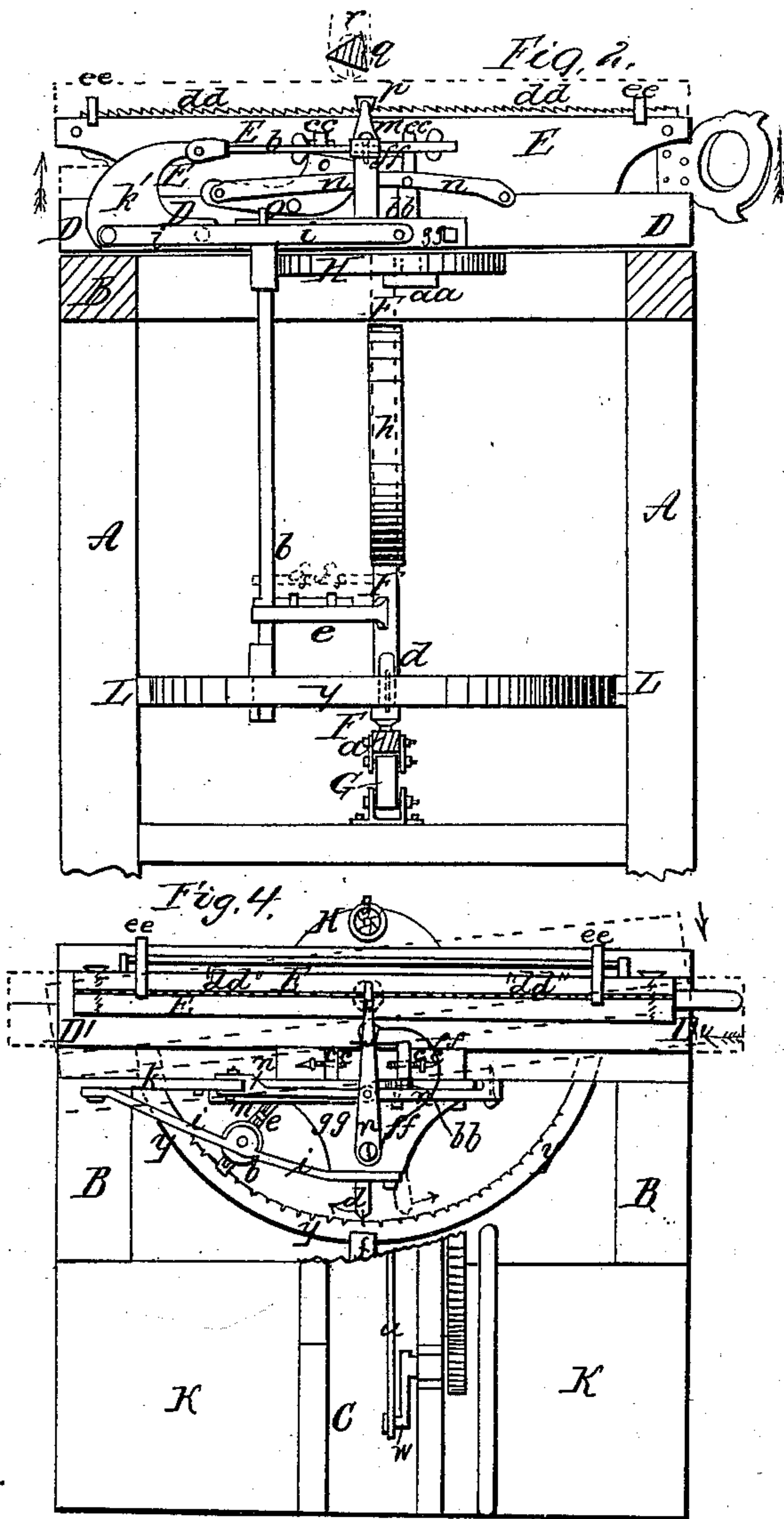
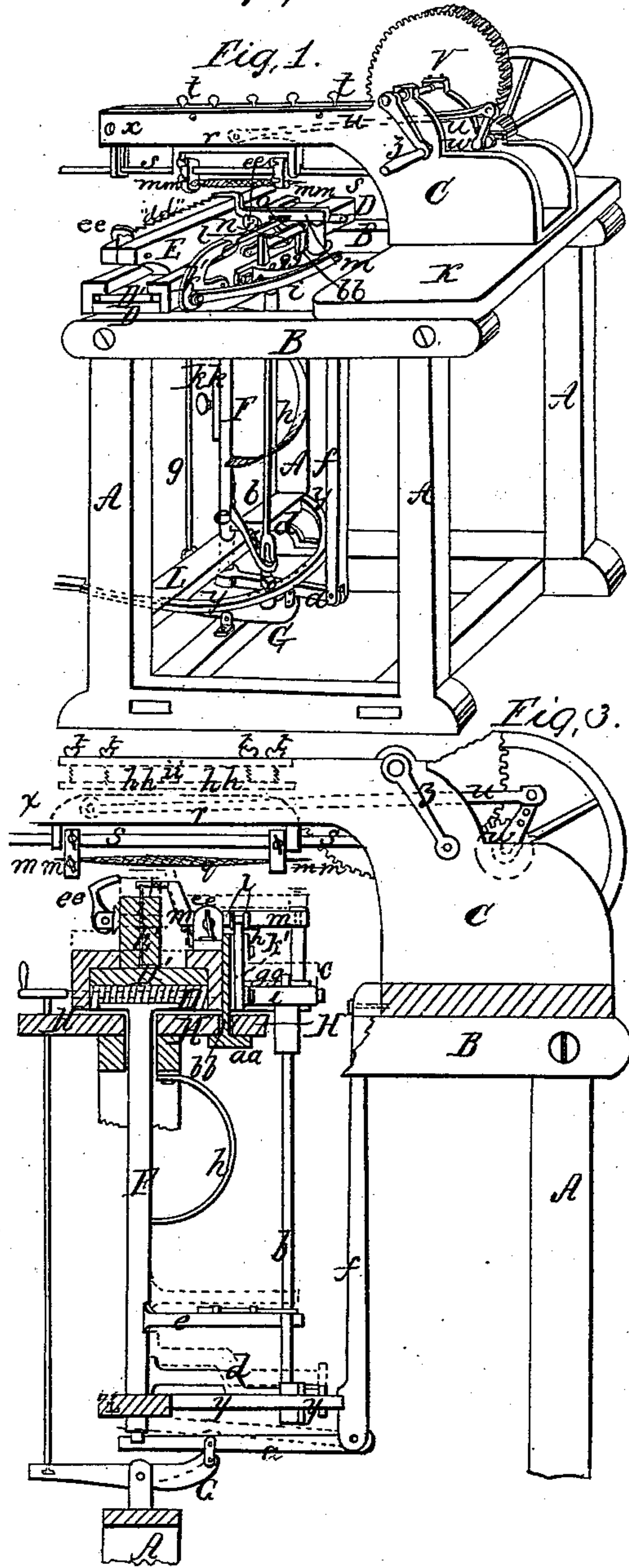


Saw Sharpener.

N^o 94,028.

Patented Aug. 24. 1869.



Witnesses;

Edmund Thompson
Henry W Wells

Inventor,

George Price

United States Patent Office.

GEORGE PRICE, OF PEORIA COUNTY, ILLINOIS.

Letters Patent No. 94,028, dated August 24, 1869.

IMPROVEMENT IN SAW-SHARPENERS.

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, GEORGE PRICE, of the county of Peoria, and State of Illinois, have invented a new and improved Machine for Sharpening Saws; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a perspective view.

Figure 2 is a vertical section through centre of machine, looking toward the adjusting-apparatus and saw.

Figure 3 is a side elevation.

Figure 4 is a plan view, with file-device removed, to show feeder.

This machine is for filing the teeth of any straight saw, which it does, by the adjustment-devices, to a mathematical nicety.

It consists of a frame, A A, B B, on the rear portion of which is set a bed, K, which carries the device for filing the saw, which device consists of a trough, C, with parallel sides, the back part of which carries a spur-wheel, V, and hand-crank, Z, which former is engaged with a pinion on a balance-wheel on the outside of the trough.

The pinion carries a crank, W, which is connected by a rod, u, with a reciprocating frame, r, carrying the file q.

The arms x of the trough C project some distance in advance of the front of the machine, and carry the slides in which the file-frame r moves, and is immediately over the clamps which confine the saw.

The file-frame r is mounted on a long bar, working in slots pendent from beneath the arms x of the trough.

Adjustable clamps, m m, at each end of the frame r, carry the file q between them.

The forward clamp encloses a cylindrical head, q', in which the triangular point of the file is held, and by the setting of which the file is held at any required angle.

Set-screws, t t t t, raise or lower the file-frame, and give its forward end the required pitch.

The inside of the arms x of the trough support a horizontal slide, h h, clasped by a guide, i i, projecting from the top of the frame r.

The clamps E E, confining the saw d d, are at the point of the machine, lying, when not otherwise set, at right angles to and horizontally under the filing-apparatus, being fastened to the upper surface of slide D', which moves within a horizontal bed, D.

The latter, D, is supported by the head of the vertical shaft F, which passes through the circular bed-plate H, just under the horizontal bed D.

This circular bed-plate H is let into and is supported by the upper horizontal brace of the frame B of machine.

The shaft F, above mentioned, sustains the whole of the saw-adjustments, and is stepped on the end of a horizontal lever, a, which has a pivot in the vertical brace f, in the centre of machine.

Below this lever is another one, whose fulcrum is a bolt in a jaw bolted to a cross-bar of the frame.

One end of the lever is united to the middle and under surface of the former lever a, its remote end terminating in a treadle, G, and may be depressed by the foot, or it may be made adjustable by means of a screw-rod, g, and hand-wheel, to raise or lower the saw to a hair's breadth.

Just above the step of the shaft F, the latter passes through a corresponding opening in a horizontal bar, L, designed to act as a guide, and to this bar L, at either end, are fastened the ends of a segmental guide, y, whose centre is the shaft F.

An arm, d, armed with a vertical blade at its further extremity, which fits either of the slots cut in the interior edge of segmental guide, according to adjustment, is the means of setting the shaft and its saw-adjustment to the required angle for filing.

Another horizontal arm, e, projecting from said shaft F, embraces and slides up and down on vertical bar b, which terminates in a shoulder under a lever, i, hereinafter described, and below in a slot which embraces the interior edge of segment y.

A slot is cut through the bar b, at the part embraced by the arm e, into which a key, running in eyes on the surface of the bar e, slides.

A spring, h, keeps the shaft tight down on the lever a.

The red lines in fig. 4 show one of the positions of saw-bed D, and how it swings on the supporting-shaft F.

The dotted red lines in the other diagrams show vertical movements of the shaft and its attachments.

The motion of the feeding-attachment is derived from a vertical arm, b b, passing up through a semi-circular slot in the circular bed-plate H H, and terminating, beneath the latter, in the head a a.

A shoulder or a neck within the slot confines it to its place, allowing the arm to move circularly with the saw-bed, but not to rise with feeding-attachment.

To the upper end of this arm b b, and beneath the feed-bar, is pivoted a lever, which is its fulcrum. One end of the same is pivoted to the side of the saw-bed D; the other, and longer end, to the longer arm of a lever or cam, o, the segmental head of which presses against the under side of the horizontal feed-bar m, which terminates in a triangular end, p, which slides the saw by pressing on the teeth.

The remote end of feed-bar m turns on a raised pivot,

from which a curved spring, *f f*, is carried to near the point of the feed-bar, to which place it is fixed.

A slot, in the centre of this bar *m*, retains (by means of a pin) the end of a short horizontal lever, *l*, which is attached to the upper point of a quadrant-shaped lever, *k*, its fulcrum being near the lower side of the saw-bed *D*, and immediately beneath this point.

To the further point of this lever, which is near the end of saw-bed, is pivoted the end of another horizontal lever, *i i*, the other end of which is fastened to the vertical side of a block, *g g*, which sustains the pivot of the feed-bar *m*.

The operation of this machine is as follows:

The saw *d d* is first inserted between the clamps *E E*, on the movable bed-board *D'*, and the two hooked gauges *e e*, which move on a rod fastened to the side of the saw-clamps *E E*, gauge the saw to a horizontal position.

The height of the saw is now to be regulated for the depth of file-cut in the teeth, by means of the adjustable block *k k* and thumb-screw on the shaft *F*, which prevents the rise of shaft beyond the top of block, by striking of the latter against the under side of the beam above it.

The treadle-lever *G* is now depressed, or it may be done by a screw and wheel, (as at *g*.) This brings the saw up to the file, which is operated by the crank *z*, the connecting-rod *u* operating the file and frame, in the guides on the arms *x* of the trough *C*. The file can be set at any angle required; but to file the alternate teeth diagonally, an inclination is given to the saw-bed by adjusting the blade at the end of arm *d* of shaft *F*, in either of the slots in the semicircular guide *y y*. This arm forms a steady stay to the saw-bed during the action of file on the saw. (The red lines in fig. 4 show one of its positions thus adjusted.)

As each cut is made, the shaft is lowered; at the same time the feed-bar *m*, pressing against the saw-teeth, carries the saw and bed-board or slide one tooth to the right or left, as required.

When the alternate teeth of saw are cut at one angle, the saw-bed can be swung round in the opposite position for the next cut, the file making exact and clear cuts, and at equal distances, and the same file lasts on this machine a long time, for the reason that there is no twisting motion given to the file, which, when used for saw-filing by hand, the teeth of file are soon broken off, and the file spoiled, and then not making clean work.

The level or inclination of the file is regulated by the set-screws *t t t* acting on the guide *h h*, fig. 3, by which the front extremity only of the bar *S* is inclined, the rear portion sliding in a close-fitting slot.

The operation of the feeding-portion needs, perhaps, extra description.

The pressure on the treadle *G* is the means of motion to feed-bar *m*. Thus the pressure on the treadle *G* throws up the saw-bed *D*, raises the end of lever *i*, and causes the curved spring *f f* to throw back the point *p* of the feeder *m* horizontally. The saw-bed still rising, carries up the fixed end of lever *n*, whose centre part is pivoted to the arm *b b*, which projects upward through the slot in the block *g g*, fixed in the circular bed-plate *H*, depresses the other end of said lever *n*, and that of the lever *o*, to which it is attached, and causes the segmental head of the latter to press upward the point of the feed-bar *m*, (ready for it, by its return, to move the saw for the next cut.)

The file is now set to work by means of the crank *z*, and when filing is done for that time, the treadle is released. The spring *h* forcing the shaft *F* and saw-bed downward, a reverse action of the levers ensues, bringing the point *p* of the feed-bar down on to the saw, against the vertical edge of saw-tooth, and the feed-bar now makes its final movement, and carries the same one tooth toward the left of the operator at the front of the machine.

The extent of the horizontal movement of the feed-bar *m* is regulated by the thumb-screws *c c c c*, on the projecting heads on each side of the said bar. The process is now repeated until the filing is done.

Claims.

Having thus fully described my invention,

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

1. The vertical shaft *F*, having an arm, *d*, provided with a blade, in combination with the slots of the semicircular guide *y y*, and the movable saw-bed *D*, substantially as and for the purpose set forth.

2. The combination of the adjustable block *k k* and set-screw with the vertical shaft *F*, substantially as and for the purpose described.

3. The treadle *G*, lever *a*, and vertical shaft *F*, with spring *h*, in combination with the movable saw-bed *D*, substantially as described.

4. Providing the movable saw-bed *D* with a feed-device *m*, for feeding the teeth of the saw to the file *g*, substantially as described.

5. The levers *i*, *k*, *l*, *m*, *n*, and *o*, spring *f f*, vertical bar *b*, and vertical arm *b b*, so constructed and operating as to give the required feeding-movement to the feed-device or bar *m*, substantially as described.

6. The arm *e* and vertical bar *b*, in combination with the shaft *F*, semicircular guide *y y*, and lever *i*, substantially as described.

7. The movable saw-bed *D*, with slide *D'*, and block *g g*, having the feed-device or bar *m* pivoted to a post thereon, in combination with the circular bed-plate *H* and shaft *F*, when constructed and operating substantially as described.

8. The bed-plate *K*, trough *C*, with arms *x*, spur-wheel *V*, and pinion, balance-wheel, crank *W*, and arm *u*, connecting with file-frame, all constructed and arranged as herein described.

9. The combination of the set-screws *t t t* with the guide *h h*, so that the required pitch or inclination may be given to the forward end of file, substantially as described.

10. The adjustable file-clamps *m m* and bar *S*, working in pendent slots from the arms *x* of the trough *C*, in combination with the arm *u*, constructed and operating substantially in the manner and for the purpose as set forth.

11. The combination of the gauges *e e e e*, as arranged on the rod with the saw-clamps *E E*, substantially as described.

In testimony that I claim the foregoing saw-sharpening machine, I have hereunto set my hand, this 31st day of March, 1869.

GEORGE PRICE.

Witnesses:

EDMUND THURLOW,
HENRY W. WELLS.