(Model.)

H. SHERMAN.

SAW FILING MACHINE.

No. 310,735. Patented Jan. 13, 1885.

Fig 1.

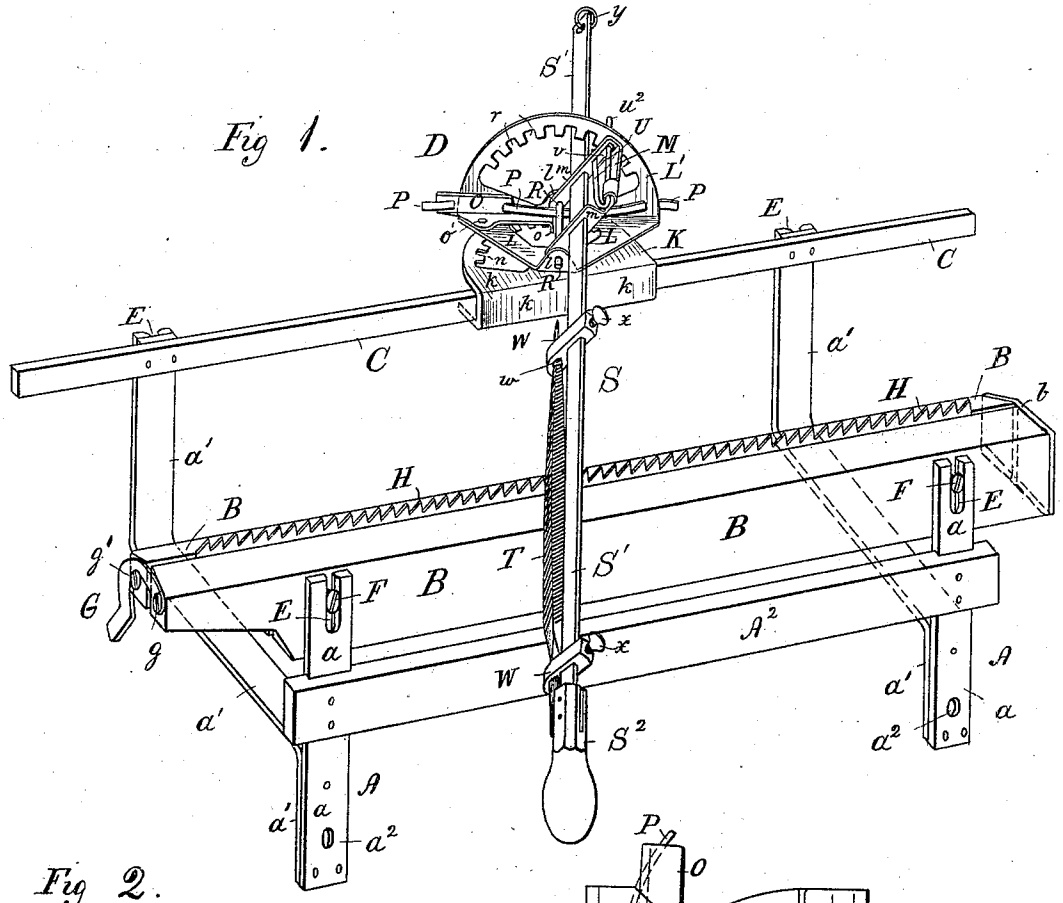
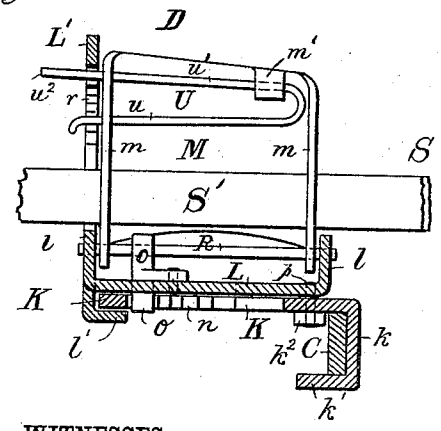


Fig 2.



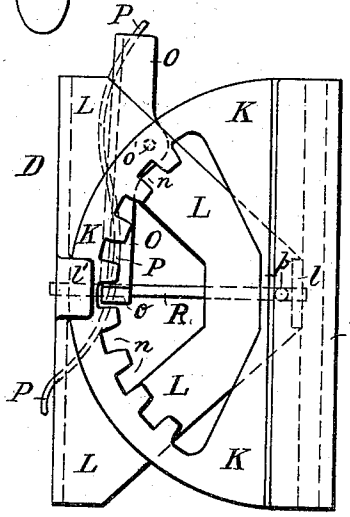


Fig 3.

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UNITED STATES PATENT OFFICE.

HAMILTON SHERMAN, OF WAVERLY, PENNSYLVANIA.

SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 310,735, dated January 13, 1885.

Application filed August 2, 1884. (Model.)

To all whom it may concern:

Be it known that I, HAMILTON SHERMAN, of Waverly, in the county of Lackawanna and State of Pennsylvania, have invented a new and Improved Saw-Filing Machine, of which the following is a full, clear, and exact description.

My invention relates to machines for filing saws; and the object of the invention is to provide a simple and easily-worked, efficient, and inexpensive machine of this class, by which the saw-teeth may be filed to an accurate and uniform bevel and pitch.

The invention consists in particular constructions of the machine-frame to allow its dismemberment, and of the file-frame guide, with a base-plate sliding on a guide-bar and with a head-piece pivoted to the base-plate, so as to be movable in horizontal plane, and with a guide-frame for the file-holding frame-bar to slide through, pivoted to the head-piece to swing to either side of a vertical line, together with catches for holding the file to the required sidewise slanting and axial positions, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front perspective view of my improved saw-filing machine. Fig. 2 is a transverse sectional elevation of the file-frame guide, and Fig. 3 is an under side view of the same.

The letters A A indicate the end pieces or brackets of the machine, which consist each of a front bar, *a*, and a rear bar, *a'*, which latter is rigidly fastened to the lower end of bar *a*, and is bent backward below the saw-clamps B B, and then upward to support the bar or plate C, on which the file-frame guide D is mounted to slide, as shown. The end brackets, A, have holes a^2, for the passage of clamps or fastening-screws by which to hold the machine to a bench or other support on which the horizontal portions of the bars *a'* may rest. A tie-bar, A^2, connects the end brackets, A A, to each other.

The upper ends of the bracket-bars *a a'* are provided with open slots E, to receive the ends of screws or headed studs F, fastened in the sides of the front saw-clamp bar, B, and the bar C, respectively, and so that the heads of fastening-screws shall come against the outer faces of the bracket-bars to hold the clamps B and bar C firmly to them, and permit their ready removal to pack the machine away in small space.

I connect the clamp-bars B B together at one end by a plate, *b*, or a hinge, and I make the inner faces of the bars convex, so that when their free ends are brought together and secured by a cam-lever, G, the saw-blade, H, to be filed will be clamped evenly for its whole length. The lever G is pivoted to a screw or stud, *g*, fixed to one bar B, and engages a headed stud, *g'*, fixed to the other bar; but any other suitable fastening may be employed.

The file-frame guide D consists, mainly, of three principal parts—viz., a base piece or plate, K, a head piece or plate, L, and a guide-frame, M.

The base-piece K has a flange, *k*, which is turned under the lower edge of the bar C, as at *k'*, and has also a strip or stop, k^2, fixed to its under side near the flange *k*, to come at the back of the bar C, to hold the base-piece to the bar and so as freely to slide along the bar. The base-piece may readily be applied to or removed from the bar by tilting it backward, as will readily be understood.

A series of notches, *n*, are formed in the base-piece K in the sweep of a circle described by the downwardly-projecting inner end *o* of a pawl, O, which is pivoted at *o'* to the head-piece L, through an opening in which the end *o* of the pawl projects, so as to engage any one of the notches for holding the head-piece L into any position in which it may be set by swinging the head-piece on a pivot, *p*, by which it is hinged or pivoted to the base-piece K so as to swing in horizontal plane. A suitable spring, P, secured to the pawl O and the head-piece L, acts to keep the end *o* of the pawl locked into a notch, *n*, of the base-plate.

The guide-frame M consists of a plate having lugs or flanges *m m*, through which the pivot-rod R passes, to hinge the guide-frame to lugs *l l* of the head-piece L, and preferably so that the pivot-rod R shall be directly over the pivot *p*, to allow the guide-frame M to be swung over to either side of a vertical line and on an axis coincident vertically with the pivot *p*, on which the head-piece swings in

horizontal plane. A lip, l', on the head-piece L comes below the back part of the base-piece K, to hold the head-piece flat to the base-piece.

The main bar S′ of the file-frame S is fitted to slide through the flanges m m of the frame M directly over or beyond its pivot R, and so that the file-frame and its file T may be inclined to the right or left in horizontal plane by swinging the head-piece L on its pivot p, to give the proper bevel or angle to the cutting-edges of the saw-teeth, and so that the frame M may be swung on its pivot R, to incline the faces of the file to give more or less rake to the saw-teeth, as may be required.

To hold the file-frame securely when the file is set axially to give the proper rake to the saw-teeth, I provide a spring, U, which is held to the frame M by a clip, m', or otherwise, and passes by both of its arms u u' through a slot, v, made in the rear flange, m, of the frame. The arm u of the spring bears on the flange m at the lower end of the slot v, and the arm u' springs upward to catch in any one of a series of notches, r, formed in an arched bar of the back plate, L′, of the head-piece, and in a circle described from the pivot R as a center.

For holding the file T to the file-frame, I provide a couple of blocks, W, which are fitted on the bar S′ of the frame, so as to be slid thereon to any desired positions for holding a file of any length. The forward block W has a hole, w, adapted to the point of the file, and the rear block W, next the handle S^2 of the bar, is apertured to receive the tang of the file. When the file is adjusted in the blocks W, and the blocks are adjusted on the bar S′, set-screws x, threaded through the tops of the blocks, are turned down on the back of the bar to bind the blocks firmly to the bar.

In setting the three-cornered file in the file-frame the file will be positioned with one flat side next and parallel with the lower edge of the bar S′, and with the lower working-faces of the file converging downwardly to a point directly below the bar; hence the file may readily be set in the frame by unskilled persons, the incline either way of the acting file-faces to produce the desired rake or angle of the teeth being given entirely by swinging the frame M to either side of a vertical line on its pivot R, as above described.

The arm u' of the spring U is prolonged to form a handle, u^2, by which the arm may conveniently be shifted to different notches r.

A ring or pin, y, at the outer end of the bar S′ prevents withdrawing the bar from the frame M on the back stroke.

The operation is as follows: The saw H having been secured in the clamps B B, and the file T set in the file-frame, as above described, the end o of the pawl O will be set in one of the notches n, to hold the file-frame at the required sidewise angle one way to give the proper bevel to the saw-teeth, and the frame m will be swung on its pivot R to one side of a vertical line, and the spring-arm u' engaged in one of the notches r, to set the file axially to give the proper rake to the saw-teeth. The file-frame guide D will now be held and slid along the bar C by one hand, while the other hand grasps the handle S^2 and reciprocates the file to sharpen the saw-teeth one way; which being done, the head-piece L will be set to incline the file sidewise the other way, and the frame M will also be reversed or shifted over to the other side of a vertical line to shift the file axially for sharpening the saw-teeth the other way, as will readily be understood. The file may be lifted from the saw-teeth on the back stroke.

It is evident that all the required adjustments for giving any desired uniform rake or bevel and pitch of the saw-teeth may readily be made and the machine may be worked with success by unskilled persons.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-filing machine, the frame consisting of end brackets, A A, formed of bars a a', and a tie-bar, A^2, as specified, and said brackets having slots E, adapted to receive headed studs on the saw-clamps B and file-frame guide-bar C, substantially as shown and described.

2. The combination, with the end brackets, A A, formed of bars a a', having end slots, E, as specified, of the saw-clamps B B and guide-bar C, having headed studs F, engaging the slots E, substantially as shown and described.

3. The saw-clamp consisting of two bars, B B, connected at one end by a plate or hinge, b, and having means for clamping them on the saw connected to the other end, substantially as shown and described.

4. The saw-clamp consisting of two bars, B B, connected at one end by a plate or hinge, b, and at the other end by a pivoted cam-lever, G, and a stud, g', substantially as shown and described.

5. The file-frame guide D, constructed with a base piece or plate, K, adapted to slide on a guide bar or plate, C, a head-piece, L, pivoted to the plate K and to swing in horizontal plane, and means for holding the head-piece in different positions, a guide-frame, M, adapted to carry the file-frame bar and pivoted at R to the head-piece L, and means for locking the frame M in different positions on the head-piece, substantially as shown and described.

6. The file-frame guide constructed with a base piece or plate, K, adapted to slide on a bar or plate, C, and provided with notches n, a head-piece, L, pivoted to the plate K to swing in horizontal plane and provided with notches r, the pawl O, pivoted to the head-piece L and engaging the notches n, the guide-frame M, adapted to carry the file-frame bar S′ and pivoted at R to the head-piece, and a catch fixed to the frame M and engaging the notches r, substantially as shown and described.

7. The file-frame guide constructed for adjusting the file sidewise and axially, as specified, and formed with the flanges $k\,k'$ and stop k^2, for engaging the guide-bar C, substantially as shown and described.

8. The combination, in a saw-filing machine, with the file-frame guide D, constructed with parts K L M, and means for holding them when adjusted to incline the file sidewise and move the file axially, as specified, of the guide-bar C, the saw-clamps B, arranged in front of the guide-bar, and the file-frame S, consisting of a bar, S′ and blocks W W, all constructed and arranged for operation substantially as shown and described.

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Witnesses:
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