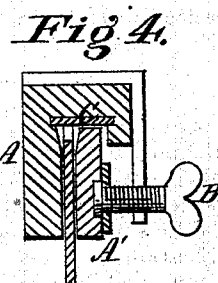
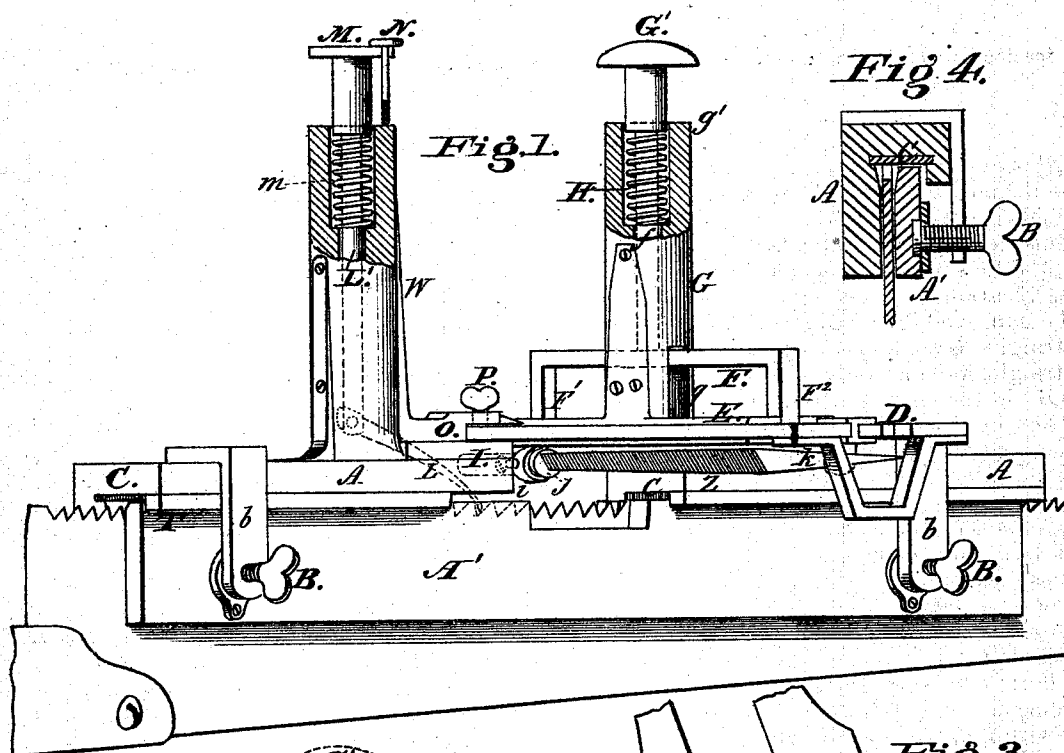


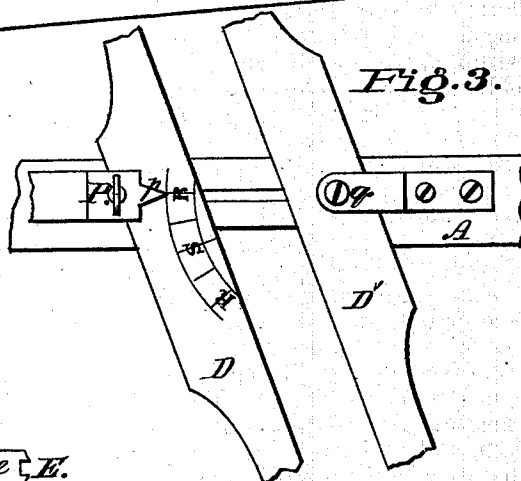
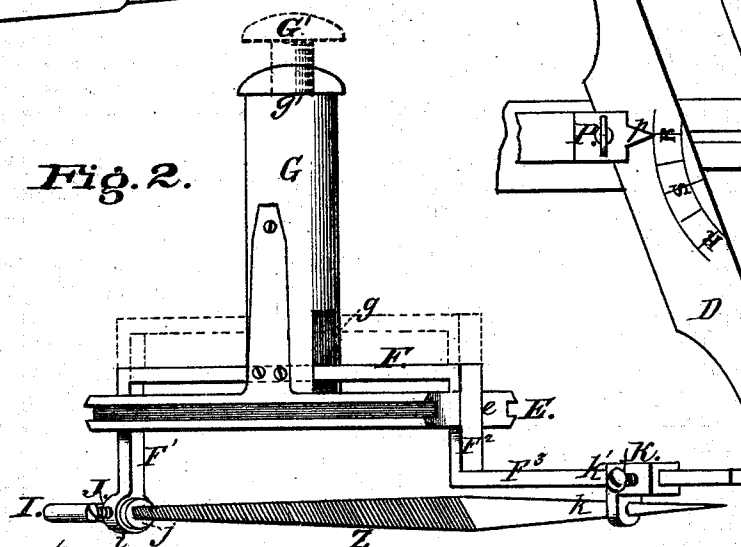
**M. S. BREWER.**  
**Saw-Filing Machines.**

No. 146,645.

Patented Jan. 20, 1874.



*Fig. 2.*



*Fig. 3.*

*Witnesses*  
*W B R Dickenson*  
*Henry Fort.*

*Inventor.*  
*Michael S Brewer,*  
*Johnson & Johnson*  
*Attorneys*

# UNITED STATES PATENT OFFICE.

MICHAEL S. BREWER, OF PHELPS COUNTY, MISSOURI.

## IMPROVEMENT IN SAW-FILING MACHINES.

Specification forming part of Letters Patent No. **146,645**, dated January 20, 1874; application filed June 27, 1873.

*To all whom it may concern:*

Be it known that I, MICHAEL S. BREWER, of Phelps county and State of Missouri, have invented certain new and useful Improvements in Hand-Saw Filers, of which the following is a specification:

My improved filer is adapted for filing hand or straight saws, and in which either a bevel or straight file may be used. The features of novelty in the device consist, first, of the combination in a saw-filer, of the hand-hold with a file-holder and a pressure-stem inclosed by said hand-hold for joint operation in giving both horizontal and vertical motion to the file; second, in the combination of a filing device having a feed movement over and upon the saw, of a glass bearing-surface for the saw-teeth to prevent the latter from being dulled by the feed of the device thereon; third, of a file-holder with its branches fitted within guides in a horizontal slide, so as to move vertically therein, in combination with a pivoted way-bar, within an opening in which the slide and file-holder are arranged for vertical and horizontal action; fourth, of a feeding-pawl, in combination with an inclosed vertical stem and the frame which carries the pawl, arranged for effecting the feed of the frame automatically by force applied to the vertical pressure-stem to straighten the pawl against the saw-teeth and force back the carrying-frame; fifth, in the combination of the adjustable thumb device, with a stop and handle of the file-holder, for limiting the controllable filing pressure and render the teeth of uniform depth; and, finally, of the device for varying the feed of the filer over the saw, according to the coarseness of the teeth, and supporting it in position to be operated by a thumb-knob.

In the accompanying drawings, Figure 1 represents a perspective elevation of a saw-filer embodying my invention; Fig. 2, a similar view of the file-holder and its slide with the file depressed to its limit; Fig. 3, a plan of a portion of the pivoted way-bar for the file-holder slide; and Fig. 4, a cross-section of the holding and carrying trough-frame.

The saw to be filed is first secured in a clamp such as used by carpenters, and it is then clamped in a vice with the toothed portion of the saw exposed for the free action of the filer.

The filing device proper is mounted upon a carrying-frame, A, in form like an inverted trough with one side, A', made adjustable with respect to the other by adjusting-screws B B passing through arms *b b*, by which the side A' is suspended; and this trough is placed upon the saw-teeth and adjusted sufficiently loose by the screws B B to allow it to be moved along freely over the teeth during the operation of filing. A glass under surface, C, of the frame A forms a smooth bearing for the saw-teeth, and prevents their dulling in moving the filer over and upon their points. A metallic way or guide bar, D, for the file-holder is pivoted at *g* upon the top of the frame A, the pivot being in the middle of its length and at one side, and the open ways or guides are formed by the two sides D D', to receive and admit of the reciprocating movement of a grooved slide, E, which carries the file-holder cross-wise over the saw. The file-holder is an angular bar, F, with the file Z secured to its end branches F<sup>1</sup> F<sup>2</sup> in the direction of its length, and a screw-stem, *f*, rising from its middle horizontal portion F, and inclosed by a handle, G, of the slide E, for a purpose presently described. The slide and file-holder are connected so that the latter will have a vertical movement by the branches F<sup>1</sup> F<sup>2</sup> interlocking with guide-openings *e* in the ends of the slide E, and the bar F moving in a vertical mortise, *g*, in the handle G. The screw-stem *f* extends vertically through an opening in this handle, and is provided with an adjustable thumb-plate, G', by which the distance of the file below the slide E is regulated for the proper depth to file the teeth, the end *g'* of the handle serving as a stop to limit the depression of this thumb-piece, for the purpose as shown in Fig. 2. In operating the slide, the handle G is grasped by the right hand with the thumb pressing down the stem-knob G', and as each tooth is finished the thumb-knob is released from pressure, and an interior spiral spring, H, which constantly presses upward upon the thumb-piece, raises the file Z above the teeth to allow a feeder, L, to move the filer to the next tooth to be filed, the file receiving simultaneously with its reciprocating movement a vertical pressure by the thumb upon the saw-tooth until the gaged depth of tooth is

obtained. The file Z is secured to its holder F by an angular socket-receiver, I, into which the file-point is inserted and held from turning. The socket-piece I is cylindrical, and passes through an eye, *i*, in the end of the branch F<sup>1</sup>, to allow the file to be adjusted to give the proper bevel to the teeth, and held at such "set" by a screw, J, passing through the eye *i* against the socket-piece, which is held in the eye by a collar, *j*, which may be gaged to determine the bevel for the teeth. The file-tail *k* is inserted in an arm, K, fitted upon the horizontal branch F<sup>2</sup> of the holder F, and on which it is adjusted and clamped by a screw, *k'*, to bind the point of the file in its socket. The way or guide bar D has a graded arc on the side opposite its pivot *q* for adjustment in connection with a fixed point, *p*, and a clamping thumb-screw, P, to hold the way-bar as it may be adjusted upon its pivot obliquely to the frame A at the points R R to give the correct set for a cut-off saw, as shown in Fig. 3, or at the center line S of the scale, to bring the way-bar at right angles to the frame A, to give a proper set for a rip-saw. The trough-frame is recessed below the way-bar to admit of the proper action of the file upon the saw, and the said way-bar is a sufficient distance above the teeth to allow the file to be raised clear of them in feeding the filer thereover. This feeding movement takes place after each tooth is filed by means of a pawl-feeder, L, arranged in the line of the trough so as to act upon the saw-teeth, and pivoted to a screw-stem, L', passing through an inclosing-handle, W, on the frame A, and provided with an adjustable thumb-knob, M, a spring, *m*, for constantly pressing it outward, and a stop-screw, N, to regulate the distance of the movement of the pawl L, to feed correctly and according to the coarseness of the saw-teeth.

The feed is made by pressing with the left hand upon the knob M, and, as the acting end

of the pawl rests upon and abuts against teeth, it will, when its stem L' is depressed, push the filer along over and upon the saw-teeth a distance of one tooth, and so on until all the teeth are filed, the stop-screw N serving to gage the stroke of the pawl by increasing or diminishing the vertical movement of its stem to suit fine or coarse teeth. In this way all the teeth are sharpened by a device which is moved bodily over the saw-teeth by the pressure of one hand, while the operation of filing is carried on by the other.

I claim—

1. The hand-hold G provided with the slot *g*, in combination with the vertically-adjustable file-holder F and the pressure-stem G', inclosed by said hand-hold for joint operation, substantially as described.

2. The combination, with a saw-filing device having a feed movement over and upon the points of the teeth, of a glass bearing-surface, C, for the purpose described.

3. The file-holder F fitted within guides in the slide E for movement vertically therein, in combination with the pivoted open way-bar D D', between which the slide E and the file-holder F are arranged for operation, as described.

4. The pawl L, in combination with the stem L' M and the frame A, whereby the feed of said frame is effected automatically by force applied to the pressure-stem M to straighten the pawl and force back the frame, as described.

5. The thumb device G', in combination with the stop *g'* and the handle G of the file-holder, as and for the purpose described.

6. The pressure thumb-knob M and the gage-stop N, in combination with the feeding-pawl L, as and for the purpose set forth.

MICHAEL S. BREWER.

Witnesses:

D. B. R. DICKINSON,  
HENRY FORT.