(No Model.)

W. H. PENROSE.

SAW FILING MACHINE.

No. 409,866. Patented Aug. 27, 1889.

Fig 1.

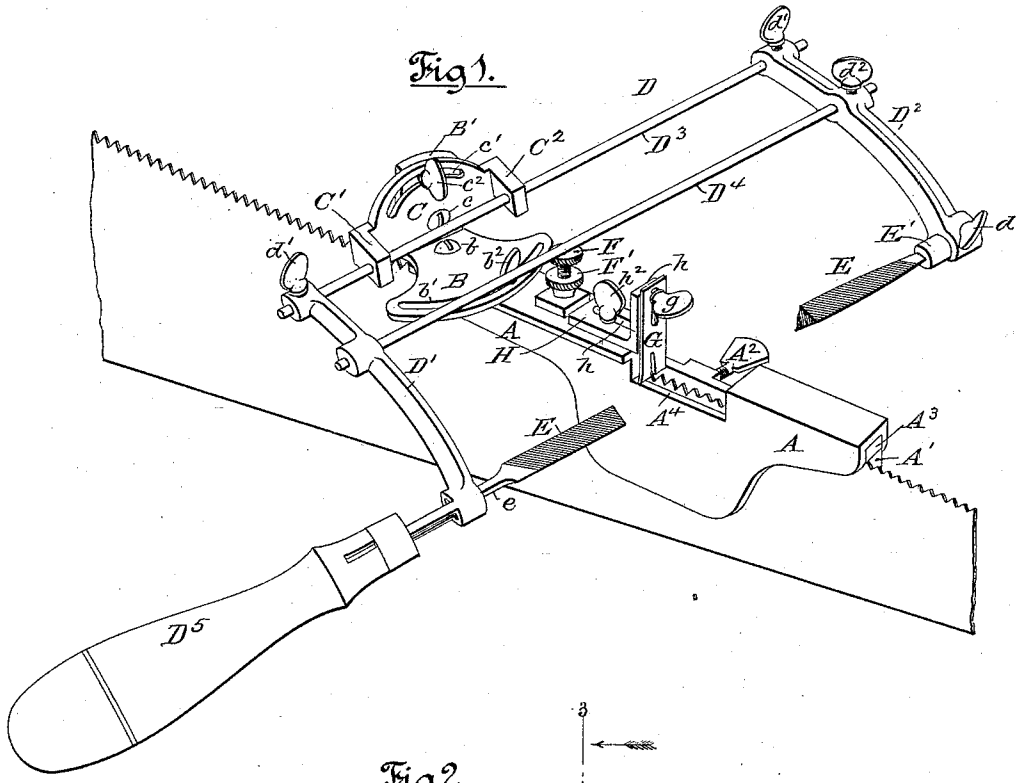


Fig 2.

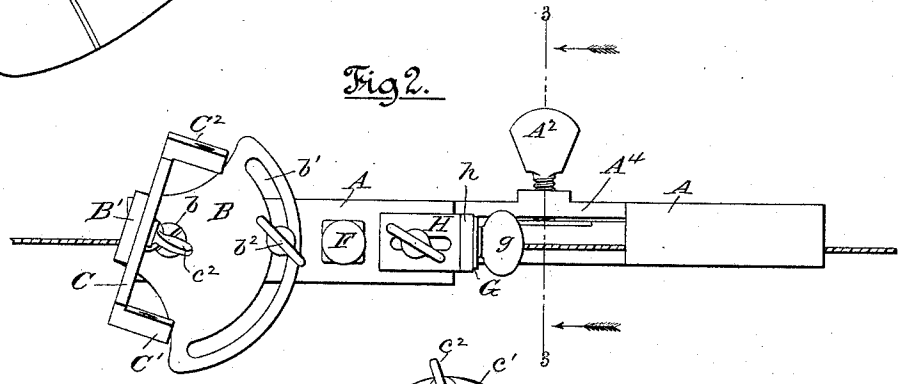
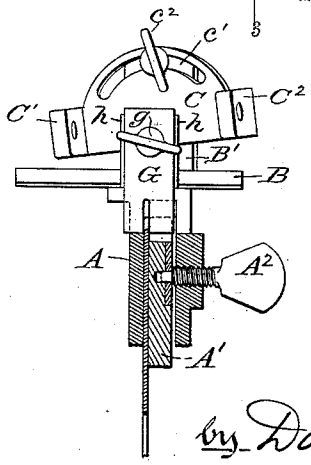


Fig 3.



Witnesses
Wm. F. Fleming
Louis M. Whitehead.

Inventor
William H. Penrose
by Dayton, Poole & Brown
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM H. PENROSE, OF THE UNITED STATES ARMY.

SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 409,866, dated August 27, 1889.

Application filed November 17, 1888. Serial No. 291,111. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PENROSE, an officer in the United States Army, stationed at Fort Douglass, in the Territory of Utah, have invented certain new and useful Improvements in Saw-Filing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to devices for filing saws of that class comprising a support for a reciprocating file-frame and a guiding-connection of the file-frame with the support.

One object of the improvements herein described and claimed is to provide a construction by which the necessity of employing a vise or long wooden clamps to hold the saw is obviated; and to this end the device contains a saw-clamp with which the file-frame has a direct guiding-connection.

Other objects of the invention have reference to adjustments whereby the angle of the tooth-faces may be varied, the distance between tooth-points may be determined, and the depth of the file-cut regulated; and to these ends the invention consists in features of construction, which are hereinafter fully explained.

Referring to the accompanying drawings, Figure 1 is a perspective view of the complete device applied to a saw, a central portion of the file being broken out to better reveal portions which would otherwise be in part hidden thereby. Fig. 2 is a top view of the saw-clamp and its immediate attachments, the file-frame being removed. Fig. 3 is a transverse section of the saw-clamp in the line 3 3 of Fig. 2, looking in the direction of the arrows applied to said line.

A represents a saw-clamp consisting of an oblong metal frame slotted deeply from the under side to rest over the edge of a saw-blade, the slot being sufficiently wide and deep to accommodate a wooden gab or clamp jaw A′, arranged to bear on one side of the saw-blade and forced against the saw by means of a set-screw A^2, which is threaded through the adjacent flange of the clamp.

A^3 is a strip of wood or other similar material occupying the bottom of the slot in the saw-clamp to rest on the points of the teeth to prevent the latter from being dulled by contact with the metal of the clamp.

A^4 is a notch cut away in the back of the saw-clamp to allow the file to reach the teeth or saw-edge, the clamp A thus having bearing and support upon the edge of the saw at both sides of the point at which the file works thereon. Upon one end of the clamp A is pivoted a turn-block B by a pivot *b*, arranged in the immediate plane of the saw-blade. This turn-block is provided with a vertical back piece or bracket B′, to which is pivoted a second turn-block C by a pivot *c*, also in the plane of the saw-blade. The turn-block B is provided with a curved slot *b*′, formed in the arc of a circle drawn from the axis of the pivot *b*, and through this slot passes the shank of a clamp-screw b^2, which screws into the back of the clamp A. The turn-block C has a similar slot *c*′, through which passes a similar clamp-screw c^2, which screws into the bracket B′.

The letter D designates the file-frame as a whole, said frame consisting of two parallel end bars D′ D^2, joined by the rods D^3 and D^4, the first of which connects corresponding ends of the end bars and forms the back of the file-frame and the second of which connects points of the end bars intermediate to their extremities. The turn-block C is provided at its opposite ends with projecting arms C′ C^2, through which are formed holes for the passage of the rod D^3 to the file-frame, thus forming a guide for said file-frame in its reciprocating movement.

To the end bar D′ of the file-frame nearest the operator is applied a handle D^5, by which the frame is reciprocated, and between the free ends of the end bars D′ and D^2 is removably inserted the file E. For this purpose a hole for the reception of the shank *e* of the file is provided in the end bar D′, and the opposite end of the file is thrust into a socket-piece E′ in the free end of the opposite frame-bar D^2. The socket-piece E′ is desirably a separate part inserted in a hole in the end of the bar D^2, so that it may both rotate and slide longitudinally in the end bar and is held in any desired position by means of a set-screw *d*. To insert or remove the

file when the socket-piece is thus constructed, the set-screw d is retracted and the socket-piece slid away from the file, which releases the adjacent end of the latter and allows the file-shank to be drawn forward out of the hole or socket in the corresponding end of the opposite bar D′. The outer end bar D^2 of the file-frame is also desirably secured to the parallel rods D^3 and D^4 by set-screws d' and d^2, so that the entire end bar may be moved on the rods with a view of adjusting the distance between the end bars to files of different lengths. The file may also be released by loosening the set-screws d' and d^2 instead of by giving a longitudinal movement to the socket-piece E′, if preferred, and in that case the socket-piece E′ need not have a longitudinal movement in the end of the bar D^2 unless preferred.

The guiding-rod D^3 is held at both its ends by set-screws d', so that said rod is removable when it shall have been worn to permit a new one to be inserted.

The rod D^4 of the file-frame co-operates with an adjustable stop in the saw-clamp for the purpose of automatically adjusting the depth to which the file E shall cut. The stop on the clamp consists, as here shown, of a screw F, which passes into a boss on the back of the clamp-frame immediately beneath the rod D^4 and in the plane of the saw-blade, so that when the file E has reached the proper depth said rod will strike the top or head of the screw F and prevent further entrance of the file. The stop-screw F is held firmly in its position against disturbance by contact with the rod or otherwise by means of a set-nut F′.

For the purpose of adjusting the width of the teeth or the distance between their points, a gage G is provided on the saw-clamp at the notch A^4 and extends down into engagement with a tooth of the saw already cut. This gage G is a plate of steel brought to an edge on its lower extremity and secured by a set-screw g to the vertical arm h of a bracket H. The bracket H is movable lengthwise of the back of the saw-clamp, to which end it is provided with a slot h', through which passes a clamp-screw h^2, that enters the back of the clamp.

The operation of the device thus described is obvious. In refiling a saw, the saw-clamp A being fastened upon the saw-blade by means of the set-screw A^2, with the gage G bearing against the front face of a tooth already cut and the file depressed in a notch between two other teeth, the bracket H is secured by the screw h^2. The file-frame D being reciprocated by the operator, the file E will deepen the notch in which it rests to a depth determined by the position of the stop-screw F, and the angle of the file with respect to the saw-blade in either direction will be determined by the positions given to the several turn-blocks B and C. The presence of the gage G insures that the tooth-point being sharpened by the file shall be at a given distance in advance of that engaged by the gage, and this results inevitably in the equal spacing of the toothed points. After a tooth has been sharpened, the clamp is released and refastened to the saw-blade with the gage G set in the next tooth-notch, and so on till the saw has been filed throughout its length. In cutting teeth originally the gage G is set at a distance from the file equal to the aggregate width of two, three, or more teeth of the width desired to be given them.

I claim as my invention—

1. The combination, with a saw-clamp, a file-frame, and a guide for the frame attached to the clamp, of an adjustable stop on the clamp which engages the frame and regulates the depth of the cut.

2. The combination, with a saw-clamp carrying a reciprocating file-frame, of a gage consisting of a longitudinally-adjustable bracket H and a vertically-adjustable gage-point secured to said bracket, all substantially as described.

3. The saw-clamp provided with the removable guard-strips of wood or similar material resting on the tooth-points.

4. The combination of the saw-clamp provided with the notch A^4, turn-block B, having the vertical arm B′, the turn-block C, pivoted to the arm B′, the file-frame D, having a rod D′ parallel with the file and running in guides on the turn-block C, and also with the parallel intermediate rod D^3, the adjustable stop F, the gage-bracket H, secured adjustably to the clamp, and the gage-plate G, secured to the bracket H.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

WILLIAM H. PENROSE.

Witnesses:
M. E. DAYTON,
P. H. T. MASON.