

(No Model.)

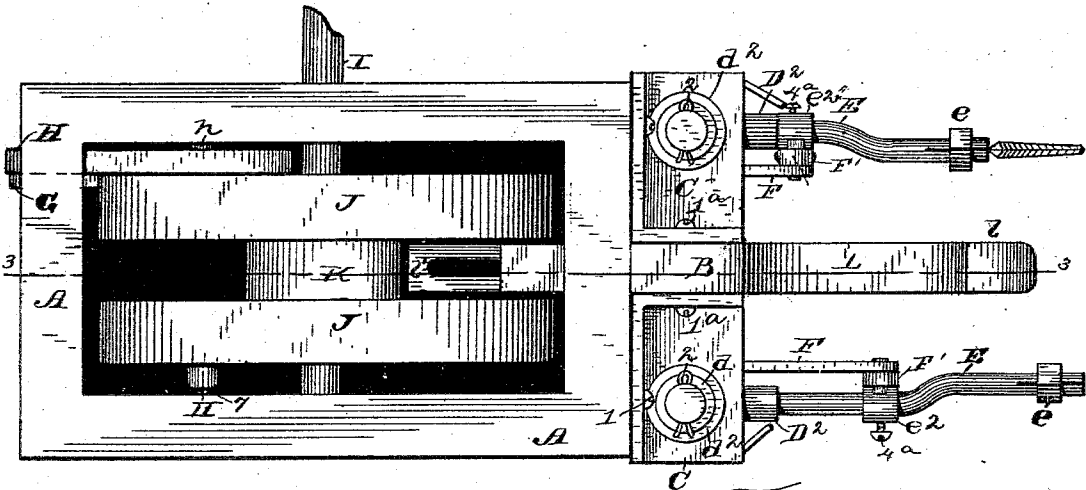
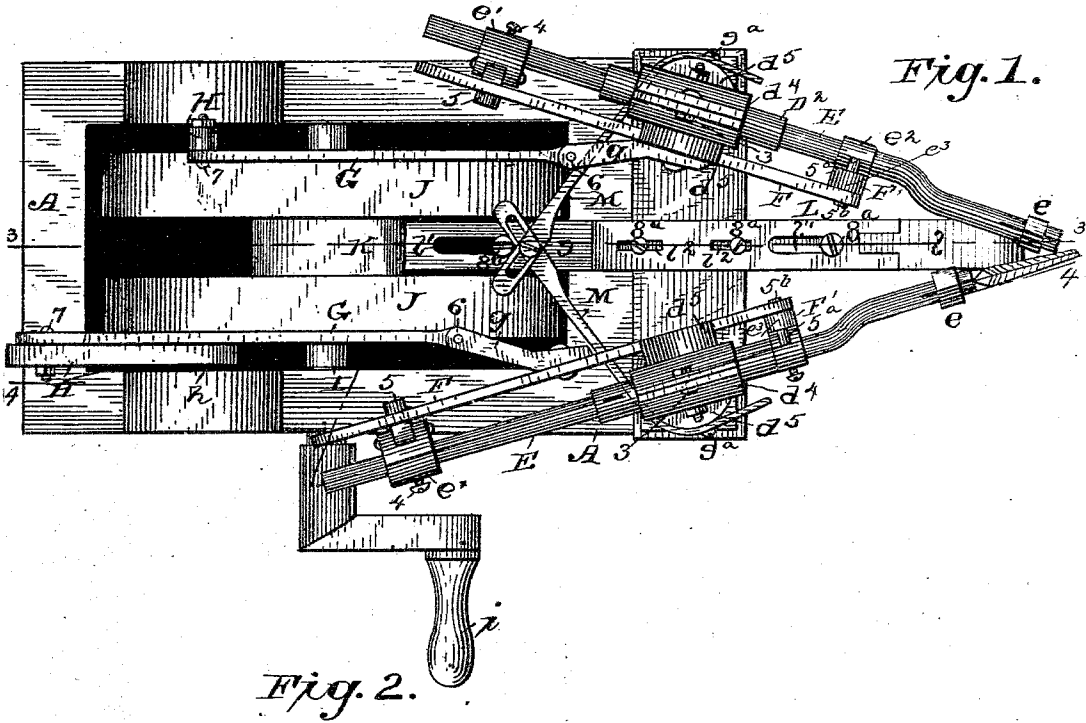
2 Sheets—Sheet 1.

F. M. SISK.

GIN SAW FILING MACHINE.

No. 296,471.

Patented Apr. 8, 1884.



WITNESSES

*Wm. J. Panner*  
*E. G. Siggers.*

*Frank M. Sisk*  
 INVENTOR

*by C. A. Snow & Co*

Attorney



# UNITED STATES PATENT OFFICE.

FRANK M. SISK, OF NEWNAN, GEORGIA.

## GIN-SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 296,471, dated April 8, 1884.

Application filed September 26, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK M. SISK, a citizen of the United States, residing at Newnan, in the county of Coweta and State of Georgia, have invented a new and useful Gin-Saw-Filing Machine, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to those machines in which the files are caused to reciprocate in approximately horizontal planes obliquely against the cutting-edges of the teeth of circular saws, for the purpose of rendering such edges keen after they have become dull from use; and my improved machine is particularly designed for sharpening gin-saws.

The object of my invention is to so arrange the parts of my machine as to enlarge the range of adjustment of the files, and to facilitate the operations of such adjustments, and also to produce an adjustable and automatically-acting feeder, by means of which the necessary movements of the saw are effected for bringing the teeth successively into position to be acted upon by the files.

To the above ends my invention consists in certain details of construction, and in the combinations of the same, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is an upper side plan view of my improved machine. Fig. 2 is an under side plan view of the same. Fig. 3 is a vertical longitudinal section of the same on the line 3 3 of Figs. 1 and 2. Fig. 4 is a vertical longitudinal section of my improved machine on the line 4 4 of Fig. 1.

In the said drawings, A designates the frame of my improved machine, composed of two parallel side sections and two parallel transverse sections uniting the adjacent ends of the side sections, and thus forming an open parallelogram. This frame carries the working parts of the machine, and may be placed upon a suitable bed-frame adapted also to receive the saw to be sharpened.

Extending outwardly and upwardly from the front end of the frame A, and cast inte-

grally therewith, is a central support, B, the purpose of which will be hereinafter described.

To the front end of the frame A, and upon either side of the support B, are two brackets, C, each of which is secured adjustably in position by thumb-screws 1, passing through vertically-elongated apertures or slots *c* in the sides of said bracket, and thence into the substance of the frame A, and also by similar thumb-screws, 1', passing through similar slots, *c'*, and thence into the substance of the support B. Thus it will be seen that by loosening the thumb-screws *c c'* the brackets C may be raised or lowered, in which position they may be held by tightening the screws, and by this means the files are adjusted to the inclination of the saw-teeth. A hole, *c''*, is formed through the top of each bracket C, to receive a sleeve, *d*, formed at its upper end with a flange, *d'*, which rests upon the top of the corresponding bracket, C. The lower ends of the sleeves *d* are each externally screw-threaded to receive a nut, *d''*, by which said sleeves are clamped upon the brackets C.

D D' designate two posts resting upon and extending vertically upward from the brackets C. Each of these posts is composed of a lower and an upper section united by a joint, *e*. The lower portion of each post passes downward entirely through the corresponding sleeve, *d*, and is secured therein by a pin, 2, passing transversely through the lower extremity of the post and beneath the nut *d''*, the arrangement being such as to permit the post to turn freely about a vertical axis and within its sleeve. The upper end of each of the upper post-sections is split, or formed with jaws *d'*, between which lies one of the file-bars E, presently to be described, in such manner as to permit said bars to work longitudinally between said jaws. When closed, the jaws *d'* are secured by a screw bolt and nut, 3, which take up wear and lost motion in the file-bars. A sleeve, D<sup>2</sup>, is interposed between the inner sides of the jaws *d'* and the file-bars E, and surrounding the latter like a sheath, as shown.

D<sup>3</sup> designates two guide-pieces secured upon the inner sides of the lower post-sections, at the upper ends thereof, by the bolts which form the pivots of the post-section joints. These guide-pieces extend vertically upward

from their juncture with the posts, and each is provided with a groove,  $d^b$ , for the reception of one of two angle-bars, F, hereinafter described.

5 E E designate two file-bars, which extend through the jaws  $d^a$ , and carry each a file upon its forward end. The front end of each file-bar E is turned off the center of the bar, in order to bring the files in the center line of  
10 motion of said bar, and is provided with a chuck to receive the shank of the file. The files are held in the chucks of the file-bars by collars or nuts  $e$ , as shown.

Surrounding the rear portion of each bar E  
15 is a collar,  $e'$ , which is secured adjustably upon the bar E by a set-screw or thumb-screw, 4. Surrounding the front portion of each bar E is a similar collar,  $e^2$ , held by a similar screw, 4<sup>a</sup>.

20 F designates the angle-bars, each of which passes through the groove  $d^a$  of the corresponding guide-piece, D<sup>3</sup>, in a direction parallel with the adjacent file-bar E. At its rear end each angle-bar F is formed with a longitudinal slot,  
25  $f$ , through which passes a stud, 5, hinged at its outer end to the collar  $e'$ .

Between the outer side of the front end of each bar F and the inner side of the adjacent collar  $e^2$ , upon each of the bars E, is placed an  
30 elongated open link, F', which is rigidly secured at its lower portion to the collar  $e^2$  by a pin, 5<sup>a</sup>, passing through said link from side to side, and also through a lug,  $e^3$ , of said collar, projecting into the central opening of said  
35 link. The front ends of the angle-bars F are each connected adjustably to the adjacent link F' by a set-screw, 5<sup>b</sup>, passing through the central opening of said link.

G designates two connecting-rods, the front  
40 end of each of which is jointed, as 6, to a head,  $g$ , pivoted by a pin or screw, 6<sup>a</sup>, upon the inner side of the adjacent angle-bar F. The joints 6 play upon vertical pivots. H H designate two levers, each of which is pivoted  
45 at  $h$  in bearings on the side of the frame A. The upper end of each lever H is provided with a longitudinal slot,  $h'$ , through which extends a thumb-screw, 7, passing into the rear end of the adjacent connecting-rod G. Thus  
50 each connecting-rod G is adjustably connected to its lever H, for a purpose hereinafter set forth.

I designates a shaft extending transversely of the frame A through its side sections, and  
55 carrying at one end a crank,  $i$ , or other device, by means of which power is applied to the machine.

Between the side sections of the frame A are two disks or wheels, J, mounted rigidly  
60 upon the shaft I, and having a space between their inner sides to receive a cam, K, mounted rigidly on the shaft I, for a purpose hereinafter stated. Each disk J is provided on its outer side with a wavering or trefoil-like cam-  
65 groove,  $j$ , and each lever H is provided at its lower extremity with an inwardly-extending

pin,  $h^2$ , carrying a roller and working in the adjacent groove  $j$ ; or any other form of traveler may be employed to work in said groove.

Upon the upper side of the support B is  
70 mounted the feed-bar L, carrying a hinged dog or pawl,  $l$ , upon its front end, said dog being designed to engage successively with the teeth of the saw and turn the latter sufficiently to bring the next tooth up to the files.  
75 The feed-bar L is formed in two sections, the front one of which overlaps the rear one, so as to permit said bar to be lengthened or shortened, as desired, the screws 8, which secure the front section to the rear section be-  
80 ing passed through slots  $l^2$  for the purpose, and thence into the upper side of the rear section. The two sections are secured movably upon the frame A and support B by screws 8<sup>a</sup>,  
85 passed through slots  $l'$  in the feed-bar sections, and thence into the substance of the frame and support. The feed-bar L is thrown forward by the engagement of its rear end with the cam K.

In order to retract the feed-bar L after it  
90 has been thrown forward by the cam K, I employ the two springs M M, each of which is secured at its rear end to the upper side of the rear feed-bar section by a screw, 9, or other suitable device. At its front end each  
95 spring M is bent partially around a cuff,  $d^3$ , to which said spring is secured by a screw, 9<sup>a</sup>, which passes through a slot,  $m$ , in the end of the spring, and also through the cuff and into the substance of the post D or D'. The post  
100 D' is somewhat higher than the post D, so that normally its file shall act on the next tooth to that upon which the file of the post D is acting.

The operation of the above-described ma-  
105 chine is as follows: The frame A being mounted upon the bed-frame, and the saw to be sharpened being also mounted on said bed-frame in proper position relative to the sharpening-ma-  
110 chine, the height of the files is adjusted by raising or lowering the brackets C, so as to bring the files into contact with the saw-teeth. The posts D D' are turned in the sleeves  $d d'$ , so as to bring the files against opposite sides of the saw-teeth; and, if necessary, the files are fur-  
115 ther adjusted to the saw-teeth by bending the posts D D' at their joints. The feed-bar L is also adjusted lengthwise, so as to bring the dog or pawl  $l$  into engagement with the teeth of the saw, and the angle-bars F F and connecting-  
120 rods G G are adjusted by their set-screws in the slots of the levers H H and in the links F' F', so as to produce the proper length of throw for the file-bars E E. Power is now applied  
125 to the shaft I, and as the latter turns the cam-grooves  $j j$  of the disks J impart three vibrations to the levers H for each complete revolution of the shaft I, and the vibratory movements of the levers are imparted to the files through the medium of the connecting-rods G  
130 G, angle-bars F F, and file-bars E E, causing the files to act with reciprocatory movements

against both sides of the cutting-edges of the saw-teeth. Once in each complete revolution of the shaft I the cam K throws the feed-bar L forward, and by means of the dog or pawl *l* turns the saw a distance of one tooth, thus bringing the succeeding tooth into position to be operated upon by the files. After each forward thrust of the feed-bar L it is thrown back by the springs M M, causing the pawl *l* to drop into engagement with the next lower tooth, in readiness to again turn the saw upon the next forward movement of the feed-bar L. The above-described operations are successively repeated till the teeth of the saw have all been sharpened.

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

1. In a saw-sharpening machine, the combination, with the grooved disks J J and pivoted levers H H, of the file-bars E E, the posts D D', and the angle-bars and connecting-rods for imparting a properly-limited movement to said file-bars, substantially as described.

2. The combination, with the grooved disks J J and cam K, of the pivoted levers H, file-bars E, the angle-bars, connecting-rods G, the posts D D', the feed-bar L, and springs M, substantially as and for the purposes set forth.

3. The grooved disks J and posts D D', composed of the jointed sections and arranged to turn at their bases, in combination with the file-bars E, pivoted levers H, the angle-bars, and connecting-rods G, substantially as and for the purposes specified.

4. The combination of the grooved disks J, pivoted levers H, file-bars E, the angle-bars, and connecting-rods G, with the posts D D', each formed of two jointed sections, the jaws *a'*, flanged sleeves *d*, nuts *a''*, pins 2, and the adjustable brackets C, substantially as and for the purposes stated.

5. The grooved disks J, slotted pivoted levers H, posts D D', and file-bars E, in combination with the grooved guide-pieces D<sup>3</sup>, links F', angle-bars F, and connecting-rods G, substantially as set forth.

6. The frame A, carrying the adjustable brackets C, in combination with the shaft I, carrying grooved disks J, the posts D D', guide-pieces D<sup>3</sup>, file-bars E, angle-bars F, connecting-rods G, and levers H, arranged and operating substantially as and for the purposes set forth.

7. The grooved disks J and posts D D', in combination with the pivoted levers H, slotted at their upper ends, the guide-pieces D<sup>3</sup>, file-bars E, having eccentric front extremities provided with chuck and carrying the nuts or collars *e*, the collars *e e' e''*, the jointed connecting-rods G, having slotted rear ends, and the open links F', substantially as and for the purposes specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRANK M. SISK.

Witnesses:

J. H. SHELMETT,  
GEO. H. CARMICAL.