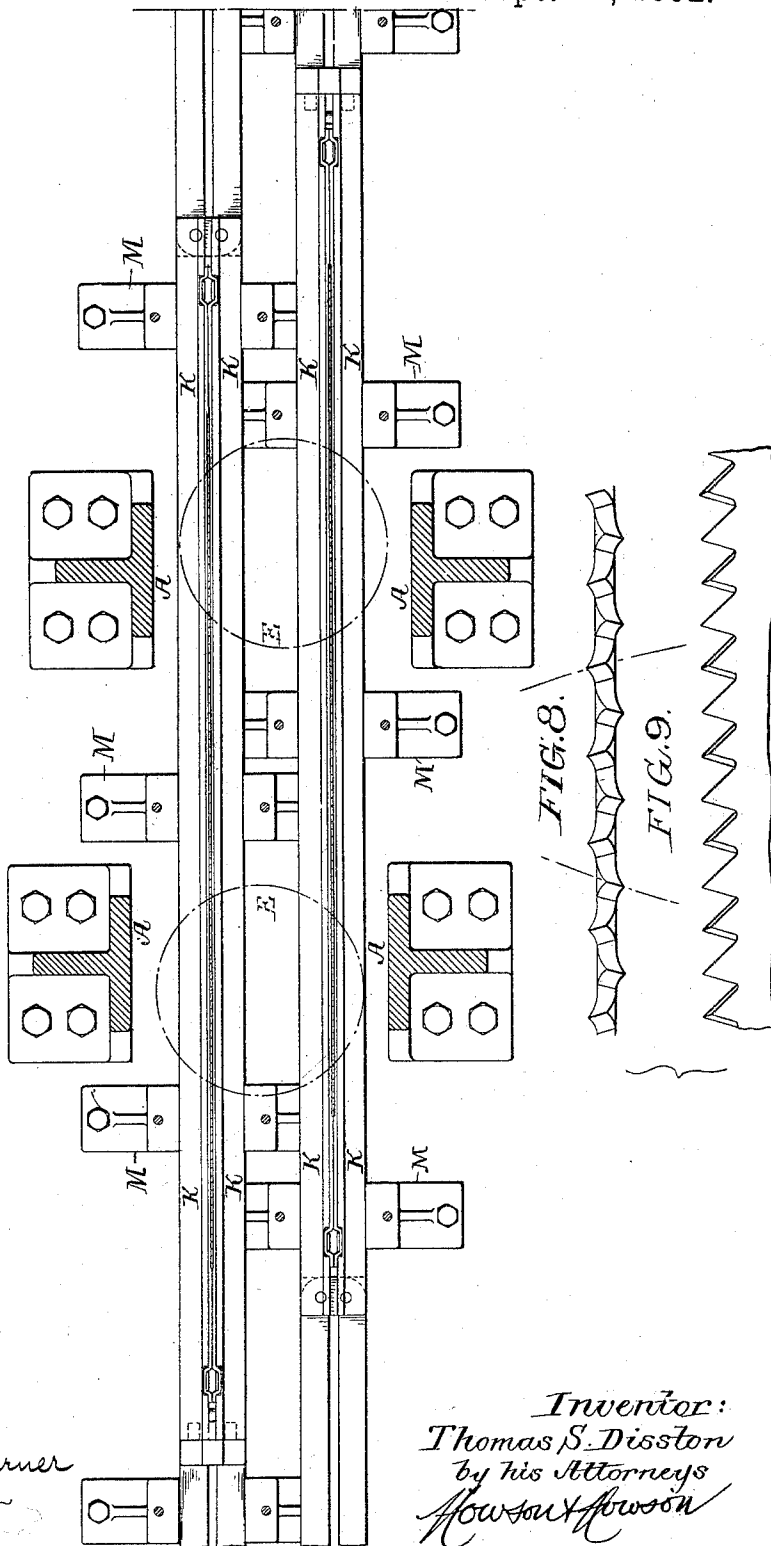


T. S. DISSTON.
SAW FILING MACHINE.

No. 482,572.

Patented Sept. 13, 1892.

FIG. 2.



Witnesses:
Hamilton D. Turner
R. Schleicher

Inventor:
Thomas S. Disston
by his Attorneys
Howson & Howson

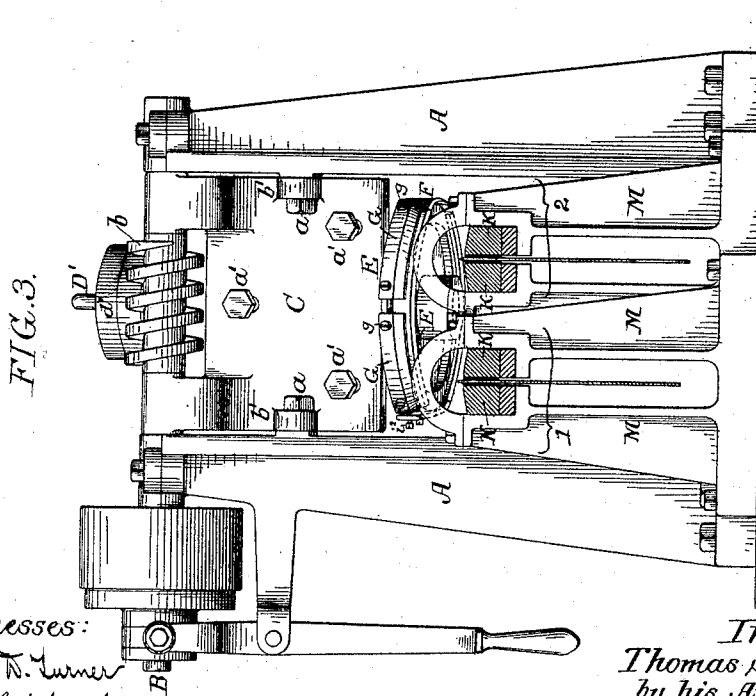
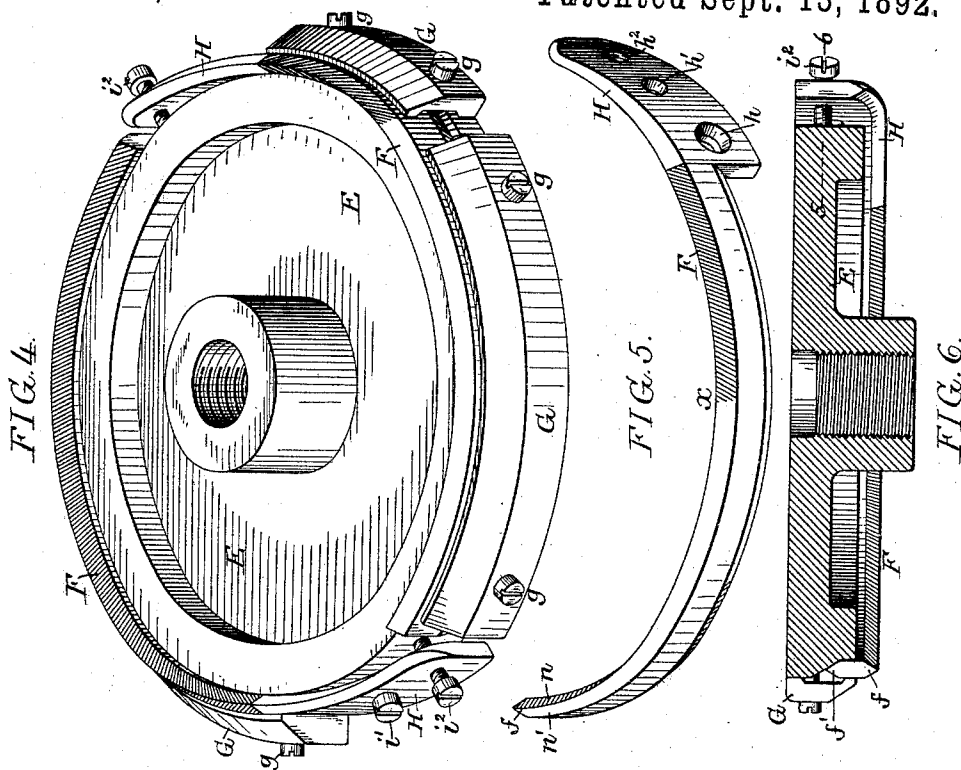
(No Model.)

3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

THOMAS S. DISSTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
HENRY DISSTON & SONS, INCORPORATED, OF SAME PLACE.

SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,572, dated September 13, 1892.

Application filed December 7, 1891. Serial No. 414,268. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. DISSTON, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Saw-Filing Machines, of which the following is a specification.

The object of my invention is to construct a machine for filing the teeth of saws in a quick and accurate manner, as fully described hereinafter, referring to the accompanying drawings.

Figure 1 is a longitudinal sectional view of my improved saw-filing machine, showing a saw in position. Fig. 2 is a sectional plan on the line 1 2, Fig. 1. Fig. 3 is a transverse section on the line 3 4, Fig. 1. Fig. 4 is an inverted perspective view of the file-carrying disk. Fig. 5 is a detached perspective view of the file. Fig. 6 is a view in cross-section of the file-carrying disk. Fig. 7 is a sectional plan view on the line 5 6, Fig. 6, enlarged to illustrate the adjustment of the guide for the file. Figs. 8 and 9 are diagrams illustrating the action of my improved filing-machine upon the saw-teeth, and Fig. 10 is a view of a detail of the machine.

In filing teeth of crosscut-saws the teeth must be filed at an angle. Every second tooth is filed in one direction and intervening teeth in the opposite direction, and the main object of my invention is to file this class of saws by machine.

The machine, as illustrated in the drawings, is a double machine, having two filing-heads, two guides, and two saw-carriers. I will first describe one filing-head and its slide and saw-carrier, as one head is a counterpart of the other.

A are standards at each side of the machine supporting a shaft B, upon which is hung a carrying-frame C, (shown clearly in Fig. 3,) and adjustably secured to this frame by screws a' is a bearing C' for a vertical shaft D, carrying at its lower end the file-holding disk E. This shaft D is geared to the shaft B through the medium of a worm b and a worm-wheel d . The shaft D has an extension D', on which are mounted weights d' , so that more or less weight can be given to the file in filing saws of different degrees

of hardness, and as the cutting-edge of the file wears away more pressure can be applied. The shaft can be raised so as to disengage the file from the saw-teeth by moving a cam c , which is pivoted at c' to the bearing C'. This cam acts on the under side of the worm-wheel d . The shape of the cam is clearly shown in Fig. 10.

To accommodate saws having teeth of different inclines, the frame C can be adjusted to different angles by loosening the set-screw a , which is adapted to a slot in an arm b , preferably at each side of the frame C. When the set-screw is tightened, the frame C is held rigidly to the standard A. The center line of the shaft D, carrying the file, is at one side of the saw for the purpose of filing the teeth of a bevel. In crosscut-saws the teeth must be beveled.

The file-carrying disk is clearly shown in Figs. 4 and 6 and is so shaped as to receive the two semicircular files F F'. One of these files is clearly shown in Fig. 5. The file preferably has two V-shaped cutting-edges $f f'$, as shown in Fig. 6, so that both edges of the file can be utilized. The file is clamped to the disk E by a clamp-plate G and binding-screws g , with the edge f exposed. In front of each file is a feeding-plate H, (clearly shown in Fig. 7,) having an opening h , through which passes the confining-screw i to hold the rear end of the plate in line with the file F, and adapted to an opening h' in the feeding-plate is a set-screw i' , the threads of which mesh with threads in an orifice e in the disk E, and adapted to a threaded opening h^2 in the plate H is a set-screw i^2 , which bears against the edge of the disk E, as clearly shown in Fig. 7. Thus by adjusting the set-screws $i' i^2$ the feeding-plate can be set to feed saws having teeth of different gage.

It will be noticed on referring to Figs. 4 and 5 that file-teeth are cut on each side $n n'$ of the cutting-edge; but while the teeth on the inner edge n of the file extend the full length of the file the teeth on the outer edge n' only extend to the point x . This short outside file portion files the back of the tooth and the long portion files the front of the tooth, as there is always considerably more filing to be done at the front of the tooth than at the

back. When one filing-surface is worn out, the file can be reversed and the opposite surface utilized.

Guided in suitable standards Mare carriers
5 K, formed of two sections *k k*, hinged together at one end and having on their inner faces rubber or other yielding material. The saw is placed between the jaws of this clamp, and the two jaws are secured together by a ring
10 or other fastening.

In the drawings, as stated above, I have shown two filing-heads and two guides and carriers, one carrier acting in conjunction with one filing-head and the other carrier acting in
15 conjunction with the other filing-head. The guides for the two carriers are situated side by side and one head is arranged back of the other head. In some instances one long guide may be used and the filing-heads arranged at such
20 a distance apart that when the carrier and its saw pass from the control of the first filing-disk it will pass under the control of the second filing-disk, one filing-disk filing the right-hand teeth and the other filing-disk filing the
25 left-hand teeth. Each filing-head is arranged at a sufficient distance from one side of the saw that the filing-head will file the teeth at an incline, as shown by dotted lines in Fig. 8. The inclination of the teeth can be varied by
30 setting the head nearer to or farther from the side of the saw.

The operation of the machine is as follows: The first step taken is to set the feeding-plate H to the teeth of the saw to be filed, which
35 is readily done by manipulating the set-screws *i' i'*. Then the saw is clamped in position between the two clamp-plates of the carrier K and passed through the guides 1, Fig. 3, in the direction of the arrow, Fig. 1, with the
40 butt of the saw presented first to the file. The shaft D is suitably weighted, so as to place sufficient pressure upon the file. Then one of the semicircular files enters the space between two teeth. The guide-plate H then enters the
45 space between the next teeth to be filed, its file following after, and so on throughout the entire length of the saw, the files of one head only entering every second space. The carrier is then placed on the guide-way 2 and
50 fed therethrough by the second filing-head, which acts on the edges of the teeth not acted upon by the previous filing edge. This filing-head is on the opposite side of the saw. Consequently it will file the teeth at a different
55 angle to the previous head. When the saw passes away from the second filing-head, all of the teeth have been filed evenly and at the proper angle.

I claim as my invention—

60 1. The combination, in a saw-filing machine, of the saw-carrier, a filing-disk, an inclined shaft carrying the same, a file mounted on said disk and having its cutting-face projecting from the lower side of the disk, with
65 mechanism for rotating said shaft, substantially as specified.

2. The combination, in a saw-filing ma-

chine, of the saw-carrier, the file-disk, an inclined shaft carrying the same, a file carried by said disk, having its cutting-face projecting from the lower side of said disk, the axis of said saw-filing disk being in a different vertical plane from that assumed by the teeth of the saw being acted upon, with mechanism for driving said shaft, substantially as specified.

3. The combination of the inclined shaft D, the filing-disk, files carried thereby and projecting from the lower side of the disk, the saw-guides, and feeding-plates on said disk
80 for moving the saw into line with the files, substantially as specified.

4. The combination, in a saw-filing machine, of the disk with semicircular files clamped thereto and having cutting-teeth
85 upon their opposite faces, whereby said files may be reversed when worn, substantially as specified.

5. The combination, in a saw-filing machine, of a semicircular file having two cutting-faces inclined toward a common edge and adapted to act respectively on the front and back of the saw-teeth, the number of cutting-teeth on that face of the file acting on the front of the saw-tooth being greater than
95 the number of cutting-teeth on that face of the file acting on the back of the saw-teeth, substantially as specified.

6. The combination of the saw-guides, the file-carrying disk, the semicircular files carried by said disk and having cutting-faces projecting from one side of the disk, with feed-plates in front of said files, and devices for adjusting one end of said feed-plates from and toward the periphery of the file-carrying
105 disk, substantially as specified.

7. The combination, in a saw-filing machine, of the carrier for the saw, a bearing, a shaft adapted to said bearing, a filing-disk carried by said shaft, with weights on the shaft, said shaft having sufficient vertical play to allow for the wearing away of the file and the adjustment of the saw in its carrier, substantially as specified.

8. The combination of the frame, a driving-shaft adapted to bearings therein, a frame C, hung to said shaft and adjustable with relation to the framework, a block C', carried by the frame C, a shaft adapted to said block, a worm-wheel therein adapted to engage with
120 a worm on the driving-shaft, a filing-disk carried by said shaft, and a saw-guide for holding the saw being acted upon, substantially as specified.

9. The combination of the adjustable bearing-block C', the shaft D, a filing-disk carried thereby, the saw-guide, and devices for effecting the vertical adjustment of said shaft, substantially as specified.

10. The combination of the adjustable block C', the shaft D, the filing-disk carried thereby, the saw-guides, a worm-wheel D, mounted on said shaft, a worm engaging therewith, and a cam-lever fulcrumed to said block C' and

adapted to act upon the side of the worm-wheel *d*, substantially as specified.

11. The combination of the frame, the shaft B, adapted to bearings therein, an adjustable
5 frame C, hung upon said shaft, slotted extensions *b'* on said frame, adjusting and clamping screws *a*, a block C', adjustably secured in said block C, a shaft D, a filing-disk carried thereby, the saw-guides, a worm-wheel
10 carried by said shaft D, and a worm carried

by the shaft B and adapted to engage with said worm-wheel, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS S. DISSTON.

Witnesses:

HENRY HOWSON,
EUGENE ELTERICH.