J. W. H. Doubler,

Sharpening Saws.

No. 59,193. Patented Oct. 30, 1866.

Fig. 1.

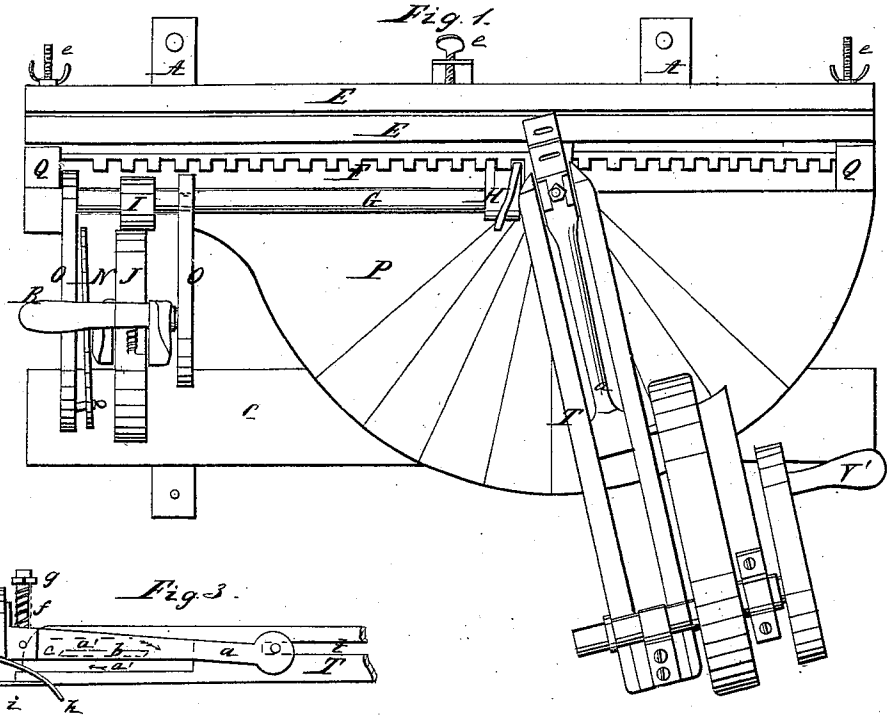


Fig. 3.

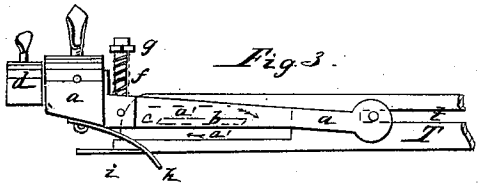
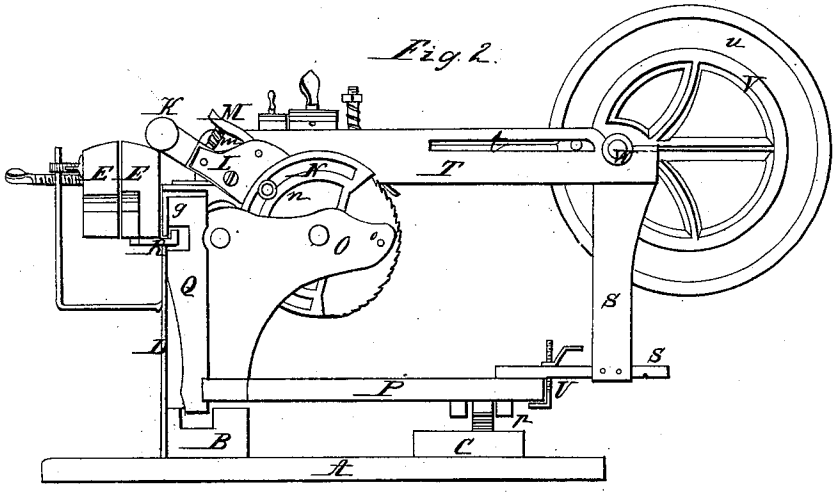


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN W. H. DOUBLER, OF CHICAGO, ILLINOIS.

IMPROVED SAW-FILING MACHINE.

Specification forming part of Letters Patent No. **59,193**, dated October 30, 1866.

To all whom it may concern:

Be it known that I, JOHN W. H. DOUBLER, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Filing Saws; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters and figures marked thereon, which form part of this specification.

The nature of my said invention consists in a novel mechanism whereby saws may be readily and accurately filed, and whereby the machine may be readily and easily adjusted to adapt it to saws having teeth of different sizes, and which may also be so arranged as to move the file across the saw at any required angle, thus adapting the machine to all kinds of saws.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a plan or top view of my invention; Fig. 2, a side view of the same; and Fig. 3 is a sectional view taken at the line *x* in Fig. 1.

Similar letters of reference in the several figures indicate the same parts of my invention.

A represents two sills or bars, upon which the machine is placed and firmly secured, being provided at each end with holes, whereby the machine may be securely and firmly fixed in any required position. B and C represent two suitable timbers or supports fastened securely to said sills A. D D are vertical standards attached to the frame B, near each end, which may be of iron or wood, as preferred, to the upper ends of which are attached the saw-holder E E, as shown.

Upon one of the jaws for holding the saw there is arranged or attached a toothed rack, as shown. (Marked F.)

The parts already mentioned and described constitute the stationary frame of the machine, upon which the remaining parts have a longitudinal reciprocating motion, as hereinafter specified, while the file-holder and its attachments have also a horizontal sweep about and upon a pivoted connection, as also is hereinafter described.

P represents a platform of semicircular form, one edge of which is supported upon the roller marked *p*, which moves along upon the way C as required, the other edge being supported by means of three standards, Q, one at each end and one at the center, which standards are provided with a projecting lip or rest, *q*, which enters a grooved support, R, upon the fixed saw-holder E, as shown, thus suspending the platform upon said rest R, while it may have a free reciprocating movement in said groove. Thus it is readily seen that the platform P, with its attachments, has a free longitudinal reciprocating motion upon the frame of the machine. The object of this movement is to move the file along upon the saw as the filing progresses, which is necessary, inasmuch as the saw itself is secured in a stationary holder or clamp.

The gradual and uniform movement is effected as follows, the file being attached, as hereinafter mentioned, or supported upon the said platform P:

O O represent two posts or uprights attached to the platform, to form bearings for the shaft G and for the axle of the wheel J, the opposite end of the shaft G being supported upon the central standard Q, hereinbefore mentioned. Upon said shaft G is the screw or worm H, which engages with the teeth of the rack F, and also the friction or gear wheel I, opposite the wheel J, and in contact with it.

L represents two arms moving upon the shaft of the wheel J, one arranged upon each side of the wheel, and uniting in one beyond the perimeter of the wheel, and having a handle, K, attached thereto, as shown. Between said arms L there is arranged, as shown, a catch, M, which is held down upon the teeth of the wheel J by the action of the spring *m*. Thus by taking the handle K, when in the position shown in Fig. 2, and drawing it back, the wheel J is revolved, and by its contact with the wheel I the shaft G and screw H are also revolved, thus moving the platform P and its attachments, including the file, along a distance proportioned to the arc described by the arms L.

To properly adjust and regulate the distance which the platform shall move at each movement of the wheel J, the slotted arc N is centered upon the shaft of J, and adjusted upon the arm L by means of the set-screw *n*.

It will readily be seen that this arc may be adjusted upon the arm L so that a very slight movement of the arm shall bring the heel of the arc upon the pin *o* and check the movement and revolution of J, or it may be so adjusted as to permit the arms L to describe or move over a large arc before being stopped by said pin *o*, thus giving any required movement to the platform, according to the size of the saw-teeth.

From the direction in which the teeth or indentations in the periphery of the wheel J are cut, it will be observed that the back movement of the arms L does not revolve the wheel J nor the shaft G, and hence the platform is stationary during said back movement.

The mechanism for operating the file consists in the guide T, which is pivoted at its front end to the top of the central standard Q, hereinbefore mentioned, giving said guide a horizontal movement about said pivot, as hereinafter described, and which is supported at its rear end by the standard S, provided at its foot with the bar *s*, which is removably attached to the edge of the platform P by the set-screw and clamp, marked U, as shown, the file-carrier *a* in said guide T, and the means for giving a reciprocating motion to the same within the guide, all as hereinafter more fully described and set forth.

The file being properly secured in the carrier, it is obvious that from the horizontal movement of the guide T about the pivot at its front end the file may be moved at any required angle with the saw, thus adapting the machine to all kinds of saws as well as all sizes.

The guide T is provided upon each side with slots *t*, through which the ends of the cross-bar upon the rear end of the file-carrier project, one end entering a groove, *u*, in the eccentric wheel V, which has its shaft at W, and is provided with a handle or crank, V′. The said wheel has its bearings upon the rear end of the guide T and upon a suitable standard upon the opposite side of the wheel erected upon the platform P. Thus it will be seen that by turning the crank V′ and the wheel V a sliding reciprocating motion is given to the file-carrier in the guide T.

The file-carrier consists of three pieces, *a*, *c*, and *d*. The file-carrier or main part of the same, marked *a*, rests upon a cross-bar, marked *c*, whose ends are supported in and move in an endless groove or path in the sides of the guide, marked *a′*. The said part *a* is held or kept down upon the bar *c* by means of the bolt *f*, which passes through them and the spring *g* upon said bolt, arranged as shown.

d represents a block, which has a round plug upon its rear end, which fits into a corresponding socket in the end of *a*, where it is secured by means of a thumb-screw, as shown. The block *d* has a triangular socket to receive the file, which is secured by a thumb-screw in like manner. By means of the round block *d* and socket it may be adjusted with great nicety, so as to arrange the file-edge at any required angle or position.

The spring *f* keeps the file down upon the saw when the machine is in operation, and at the same time allows it to yield as occasion may require.

As the file is moved forward to give the filing thrust, just as it is completed the spring *h* presses against the shoulder *i* and raises up the file and file-holder, so that in drawing back the file it does not come in contact with the saw, in which operation the aforesaid block *c* moves in said endless groove *a′* in the direction of the arrows, the file-holder being held up by the spring *h* until the block *c* rests upon the bar *b*, which keeps up the file-holder until the end of the file is drawn back from the saw, when the file-holder drops from the rear end of the bar *b* into the lower groove, in which its forward movement is made.

When the saw has been properly arranged in the jaws E, and the slotted arc N so adjusted, as aforesaid, as to properly gage the machine to the saw, the operation of the machine is as follows, care being first taken, however, to adjust the file-guide to the proper angle with the saw, and the saw in such a manner and position that the file shall be at one end:

The crank and wheel V′ V is turned so as to give the filing stroke and return movement to the file, when, with the left hand, the arm L is drawn forward until the arc strikes upon the pin *o*, as aforesaid, which moves the file along to the next indentation in the saw, when the wheel V is again turned, as before, and so on until the saw is finished.

By loosening the screw-clamp U, the guide may be moved around at any required angle upon the platforms, the radial lines drawn thereupon and a suitable groove or point upon the plate *s* enabling the adjustment to be made with ease and precision.

If preferred, both the wheels I and J herein mentioned may have cog-gearing upon their circumferences, in which case the ratchet-teeth now upon the circumference of J, into which the dog M engages, might be arranged upon one side of the wheel.

The lower ends of the pendants Q project into a groove in the frame B, as shown, to prevent any lateral play to the parts supporting the filing mechanism, all vertical disarrangement or displacement being prevented by the rest R acting upon the shoulder on Q, just beneath said rest R.

Having described the construction and operation of my invention, I will now proceed to describe and specify what I claim and desire to secure by Letters Patent:

1. The combination and arrangement of the

stationary jaws E, a stationary rack, F, file-guide T and holder *a*, wheel V, shaft G, and screw H, as and for the purposes specified.

2. The combination of the wheels J I, spring-catch M, arms L, shaft G, and screw H with the stationary rack F, substantially as and for the purposes set forth.

3. In combination with the arm L, the arrangement of the movable slotted arc N and pin or stop *o*, as and for the purposes described and set forth.

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Witnesses:
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