

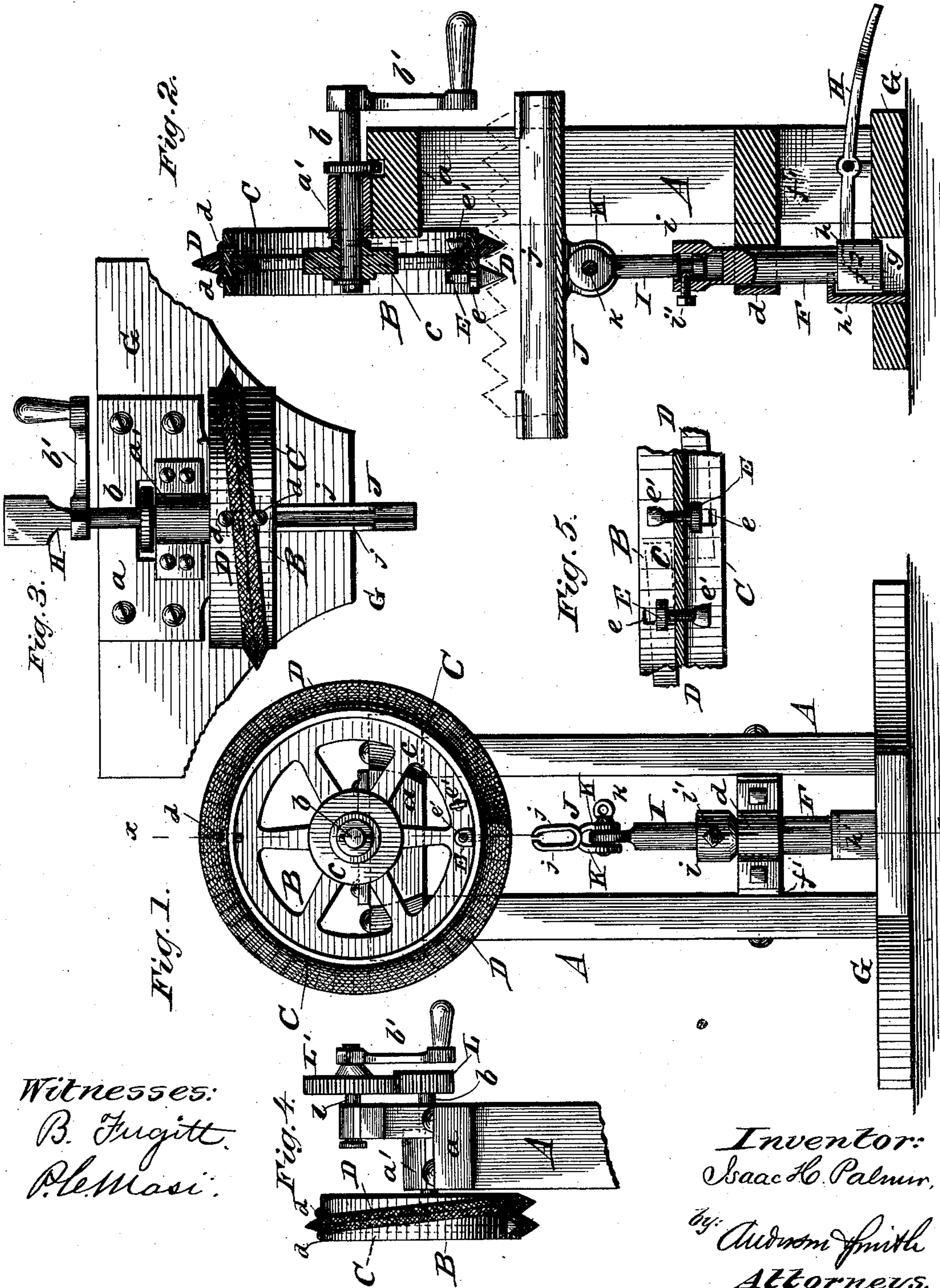
(No Model.)

I. H. PALMER.

ROTARY SAW FILER AND GUMMER.

No. 358,217.

Patented Feb. 22, 1887.



Witnesses:
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UNITED STATES PATENT OFFICE.

ISAAC H. PALMER, OF LODI, WISCONSIN.

ROTARY SAW FILER AND GUMMER.

SPECIFICATION forming part of Letters Patent No. 358,217, dated February 22, 1887.

Application filed November 4, 1886. Serial No. 217,997. (No model.)

To all whom it may concern:

Be it known that I, ISAAC H. PALMER, a citizen of the United States, residing at Lodi, in the county of Columbia and State of Wisconsin, have invented certain new and useful Improvements in Rotary Filers and Gummers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a front elevation. Fig. 2 is a vertical central section on the line $x x$, Fig. 1. Fig. 3 is a plan view. Figs. 4 and 5 are detail views.

This invention relates to improvements in saw-filing machines, the object being to file the saws rapidly, regularly, and evenly, and give the teeth any desired inclination and bevel; and it consists, essentially, in the novel construction of the filing device hereinafter described.

It also consists in the construction and arrangement of the several parts and their combination with the filing device, as is hereinafter described, and pointed out in the claims.

Referring by letter to the accompanying drawings, A designates the vertical frame of the machine, of general rectangular shape, and having secured to its top rail, a , the horizontal sleeve-bracket a' , which serves as a bearing for the shaft b of the vertical wheel B. The shaft b is retained in place by a collar thereon outside of the sleeve bracket and by the hub of the wheel B inside of the same, and has on its outer end the crank-handle b' , by which it is rotated.

The wheel B is composed of the central hub, a web, c , composed partly of spokes, and the rim C, having a broad perimeter standing out each side of the web, so as to form flanges thereto.

D is the filing bar or device, triangular in cross-section, having its sides file-scored in opposite directions, so as to file either way it is rotated, and wrapped around the rim C like a screw-thread, making a little more than one complete turn thereon. At a point of said

rim about diametrically opposite the end of the file-bar are the pins $d d$, each side of the same, to aid in holding it in place. The ends of the file-bar D have on their inner edges the projections E, which pass through slots e in the rim C, being enlarged on the inside of the rim and provided with threaded openings for the adjusting-screws e' , the ends of which engage in threaded openings in the web c . One of the said screws engages its opening on one side of the web, and the other screw engages its opening on the other side of the same, so that by their action the ends of the file-bar can be moved nearer together or farther apart and its pitch thereby changed. When it is desired to make the pitch very great, the file-bar may be jointed at or near the position of the pins d ; but for all ordinary-sized teeth this is not necessary, as the bar has spring enough to accommodate itself to the adjusting-screws e .

F is a vertical reciprocating bar supported by a bearing-bracket, d , secured to the block f' , forming part of the main frame, and between the side bars thereof. The lower end, f^2 , of said bar is squared, and enters a corresponding slot, g , in the base-plate G of the main frame. The square slot prevents the bar F from rotating as it moves.

H is a foot-lever pivoted about centrally on a bracket on the upper surface of the plate G, and with the end of its inner arm entering an opening, h , in the squared end f^2 of the bar F, so that by the motion of the operator's foot the lever will reciprocate said bar.

h' is a stop secured to the base-plate G above the end f^2 , and having its end bent down, so as to catch against the squared portion of said end and prevent the bar F from moving too far upward. The upper end, i , of the bar F is made hollow to form a socket for the end of the short bar I, to which the saw-holder is attached.

i' is a set-screw to retain said bar in position when inserted in the bar F, the former having a circumferential groove into which the end of the set-screw enters. The bar I can be fixed at any point of its rotation to the bar F.

J is the saw-holder, composed of a metal plate bent centrally and longitudinally upon

itself to form the two side strips, *j j*, between which the saw rests and slides with its teeth projecting beyond the upper edges thereof.

K K are two similar projections standing from the center of the back of the saw-holder, and having the inner flattened upper end of the bar *I* secured between them by means of the rivet *k*, the saw being fixed horizontally, or at right angles to the bar.

By means of the joint between the bar *I*, the bar *F*, and the set-screw *i'*, the saw may be turned and held so as to have the desired or proper lateral inclination to either side.

In operation the saw-holder is moved up by the bars *I F* and lever *H* until the file-bar enters between the first and second teeth at the heel of the saw. The wheel *B* is then rotated, causing the file-block to act like a screw-thread, one end entering between the second and third tooth adjacent to the head of the saw just before the other end leaves the first and second teeth. The file-bar grinds the edges as it passes between the teeth, and the saw-blade slides easily in its holder. In all cases the saw moves toward the crank when being operated on.

The foregoing applies particularly to a rip-saw in which the teeth are not beveled. In that case the saw-blade has to be set at right angles to the file-bar, which is adjusted, as described, to pass from the first and second teeth to the second and third adjacent to the heel.

In filing a crosscut-saw the saw-blade is laterally inclined by the described means to one side, and the file-bar entered, as before, between the first and second teeth adjacent to the heel; but the said bar is adjusted to pass from between those teeth to between the third and fourth teeth, and so on to the point of the saw. The blade is then returned and given an equal opposite inclination; but the file-bar is inserted between the second and third teeth and passes to between the fourth and fifth. Thus every alternate tooth is given an equal opposite bevel.

Should the wheel *B* be made small to accommodate a small file-bar, which can be made at much less expense than a large one, the crank would be in the way of the saw movement when descending. In that case a gear-wheel, *L*, is secured on the shaft *b* of the wheel, and the crank made on another shaft, *l*, having bearings on top of the frame and carrying a gear-wheel, *L*, meshing with the gear *L'*. This double gear removes the crank to one side out of the way of the saw movement, and at the same time the gears may be so proportioned to each other as to gain what power or velocity desired. The file-bars are detachable, and of course can be made to suit any style of teeth, whatever may be the slope of the same.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the rotatory wheel,

the file-bar secured around the rim of the same like a section of screw-thread, and mechanism, substantially as described, whereby the saw may be held properly inclined and moved up against the file-bar to have its teeth ground thereby, substantially as specified.

2. The combination of the rotatory wheel, the file-bar secured around the rim of the same like a section of screw-thread, the projections on the ends of said bar passing through slots in said rim, and the adjusting-screws *e'* to alter the distance between the ends of the file-bar, and so change its pitch with the reciprocating bar *F*, the lever *H* to actuate the same, the saw-holder, and means, substantially as described, to connect the saw-holder with the bar *F*, substantially as specified.

3. The combination of the main frame, the wheel *B*, having its shaft journaled thereon, and composed of a hub, the web *c*, and rim *C*, the file-bar *D*, pins *d*, projections *E*, and adjusting-screws *e'*, with the reciprocating bar *F*, the lever *H*, stop *h*, rod *I*, set-screw *i'*, and saw-holder *J*, composed of the two side plates, *j*, and having on its back the projections *K*, between which the inner plate end of the rod *I* is riveted by the pin *k*, substantially as specified.

4. The combination of the rotatory wheel, the file-bar secured around the rim of the same like a section of screw-thread, the set-screws whereby the distance between the ends of said bars is changed to alter the pitch thereof, and mechanism, substantially as described, to move the saw up against the file-bar, substantially as specified.

5. The combination of the rotatory wheel, the adjustable file-bar secured to the rim thereof like a section of screw-thread, and scored in opposite directions on its sides, so as to cut in either direction it rotates, and means, substantially as described, to move the screw up against said bar and permit it to be moved back and forth thereby, substantially as specified.

6. The combination of the rotatory wheel, the file-bar secured around the rim thereof like a section of screw-thread, and mechanism, substantially as described, whereby the saw may be moved up against the file-bar to be ground thereby, substantially as specified.

7. The combination of the rotatory wheel, the file-bar secured thereto, the mechanism, substantially as described, to move the saw up against the file-blade, and the double gearing *L L*, whereby the crank is prevented from interfering with the saw movement, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC H. PALMER.

Witnesses:

GEO. A. PERRY,
S. H. WATSON.