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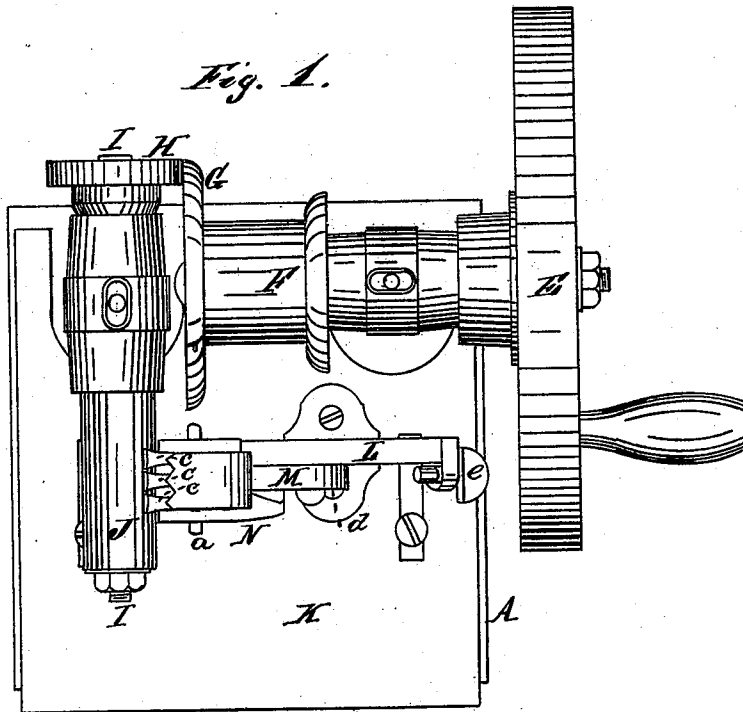
W. H. OGILVIE.

MACHINE FOR GRINDING SAW-TEETH.

No. 173,234.

Patented Feb. 8, 1876.

Fig. 1.



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Fig. 2.

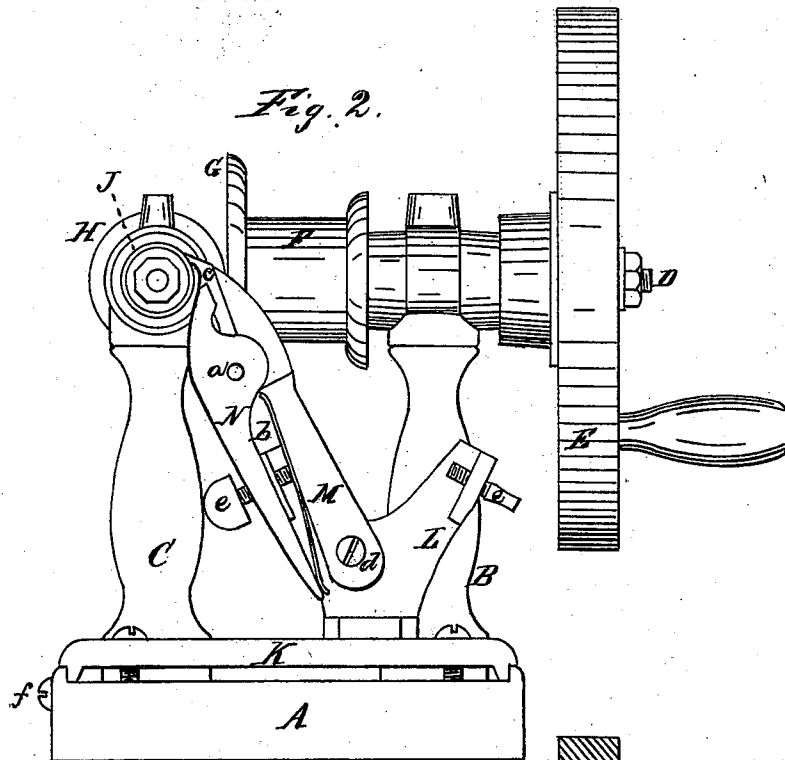


Fig. 4.

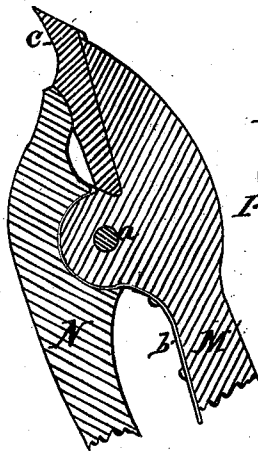
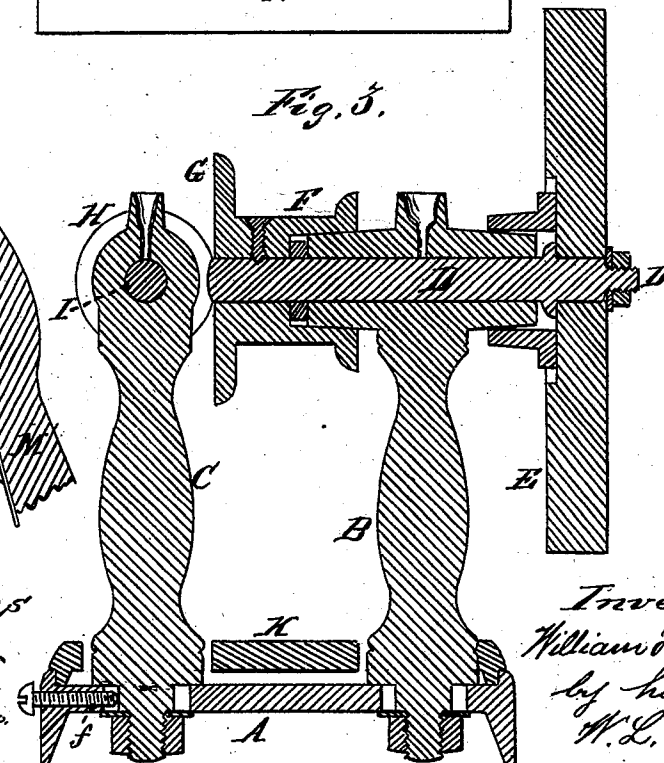


Fig. 5.



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WILLIAM H. OGILVIE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR GRINDING SAW-TEETH.

Specification forming part of Letters Patent No. **173,234**, dated February 8, 1876; application filed January 11, 1876.

To all whom it may concern:

Be it known that I, WILLIAM HENRY OGILVIE, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Machines for Grinding Saw-Teeth, of which the following is a specification:

Heretofore removable saw-teeth, or, as they are commonly called, "chisel saw-teeth," which were sharpened by grinding, as contradistinguished from filing, have been usually ground on the outer surface only, the mechanical devices which have been used for holding them in position and manipulating them in the operation of grinding being constructed with reference only to grinding this outer surface of the teeth—that is to say, the surface farthest from the center or back of the saw. As this mode of grinding made no provision for rectifying the line of the under side of the tooth as it was worn away, it was necessary to grind away the tooth on its outer side till the proper or available surface of the under side of the tooth was reached, which involved a large amount of labor in grinding, and a rapid using up of the teeth of the saw.

My invention is a machine adapted to properly grind both sides of the removable teeth of saws with regularity, exactness, and uniformity, so as to give proper cutting-edges without unnecessary waste of the teeth or unnecessary labor in grinding, substantially as hereinafter more fully set forth.

Figure 1 is a plan or top view of my machine. Fig. 2 is a side view, showing that side of the machine which is toward the bottom of the page in Fig. 1. Fig. 3 is a vertical section on a plane parallel to the plane of Fig. 2, and passing through the center of the principal shaft. Fig. 4 is a detached view, in section, on a plane parallel to the planes of Figs. 2 and 3, showing more clearly the construction of certain portions of the upper part of the clamp for holding the teeth while being ground.

A is the bed-plate of the machine, to which the posts B and C are secured. D is the main or principal shaft of the machine, which shaft is hung in the upper part of the post B. This shaft D carries an emery wheel or disk, E, which has a grinding-surface on the

side toward the said post B. It also carries the pulley F and friction-disk G, the pulley being designed to receive motion by means of a belt from some driving power, and the friction-disk being designed to impart motion from the shaft D to the friction-wheel H, and by means thereof to the shaft I, hung in the post C, which shaft I carries a small emery-wheel, J. K is a slide-rest, having a pedestal or hanger, L, extending upward from it to receive the clamp which holds the teeth of the saw in position while being ground, said rest being arranged to slide upon a horizontal plane transverse to the planes of Figs. 2 and 3.

The clamp for holding the saw-teeth is composed of two jaws or levers, M and N, connected by a pin or joint at *a*, as shown in Fig. 2, and their upper ends pressed together by a spring, *b*, to hold the saw-teeth *c* in position. The lever M is pivoted at *d* to the standard L, so as to allow it to be swung to the right or left, as shown in Fig. 2, to bring the ends of the teeth to be ground in contact with either the emery-wheel J or the side of the emery-wheel E, so as to grind both sides of the teeth without removing them from the clamp or changing their adjustment therein. For this purpose the pivot at *d* is arranged in proper position and at the proper distance from the points of the teeth to bring each side of the teeth against the wheel on which that side is to be ground at the proper angle to give suitable form to the teeth, as shown in Fig. 2. The inner faces of the jaws of the clamp are so formed as to fit the teeth on both sides, as shown more particularly in Fig. 4, and to locate them so as to allow them to enter only the proper distance into the clamp, so that the teeth may be ground of uniform length, and this object is further facilitated by the set-screws *e e* in the hanger L, which regulate the sweep of the clamp, and, consequently, the depth of the grinding. The clamp is represented as adapted to hold, and as holding, three saw-teeth; but it may be adapted to hold any convenient number.

The posts B and C are set in elongated openings in the bed A, as shown in Fig. 3, the object being to allow their adjustment to give the proper angles to the points of the teeth, and the proper friction of the friction-wheel H

upon the friction-disk G, which latter purpose is facilitated by the set-screw *f*, by which any small or minute adjustment in this respect may be made.

It will be observed that the emery-wheel J is very small in diameter, the object being to grind the under side of the tooth on a sharp curve, so as to secure a reasonably thin cutting-edge, and at the same time retain the necessary strength of the tooth back from the cutting-edge, and also secure the advantage of the turn of the curve back of the point to aid in throwing off the sawdust, or at least to give such a form as will not aid to retain it.

The dulled teeth, having been removed from the saw, are placed in position in the clamp, and the set-screws *e e* having been properly set to regulate the depth of the grinding, the teeth are first ground on the under side upon the emery-wheel J, and when this has been done the clamp is swung over to the right, and the outer side of the teeth ground upon

the emery-disk E, when they are ready to be again inserted in the saw.

To insure uniform wear of the emery-wheels it is necessary that the teeth should be slid backward and forward upon them while being ground.

I claim as my invention—

1. The combination of the grinding-wheels E and J, the clamp for holding the saw-teeth while being ground, and the slide-rest K, substantially as hereinbefore set forth.

2. The combination of the grinding-wheels E and J, the clamp for holding the saw-teeth, and the posts or supports for the shafts, made adjustable, substantially as and for the purpose hereinbefore set forth.

Witness my hand this 8th day of January, A. D. 1876.

WILLIAM HENRY OGILVIE.

Witnesses:

W. L. BENNEM,
W. H. ISAACS.