2 Sheets--Sheet 1.

F. W. BENJAMIN.

Saw-Filing Machine.

No. 159,631 Patented Feb. 9, 1875.

Fig. 1.

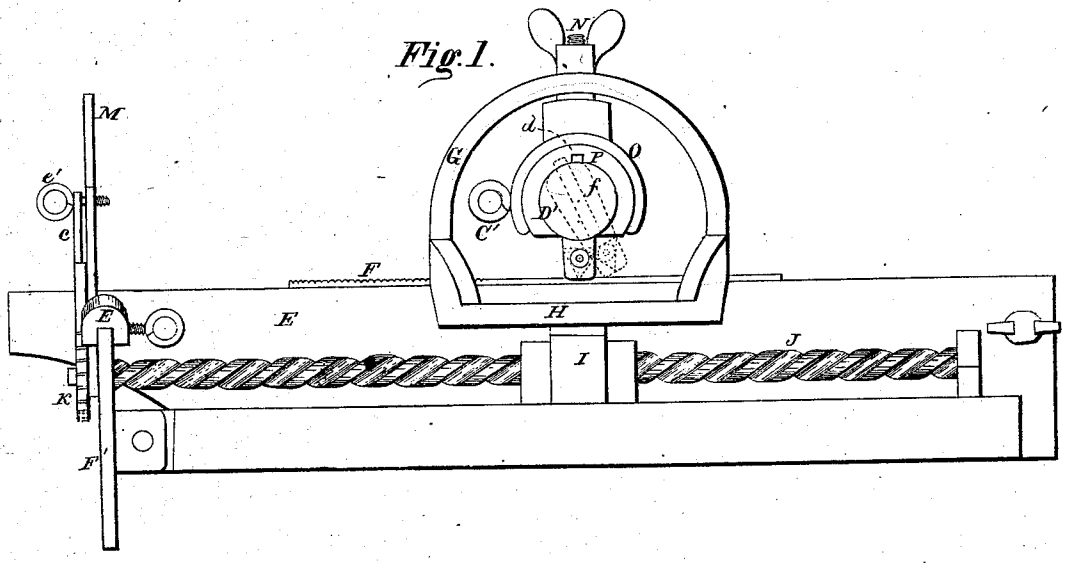
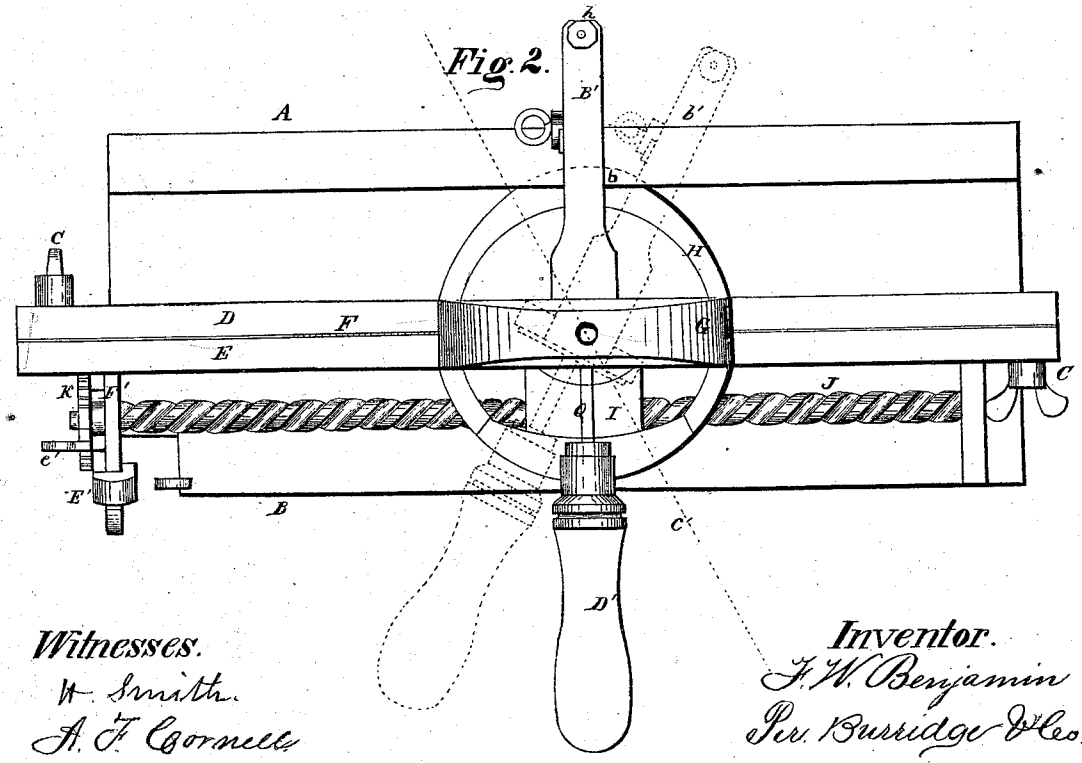


Fig. 2.



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2 Sheets--Sheet 2.

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Fig. 3.

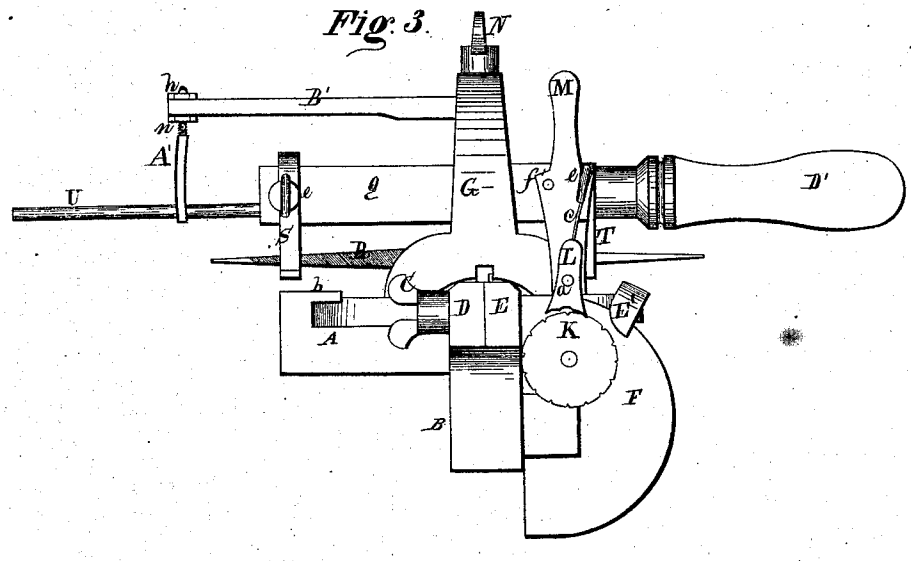
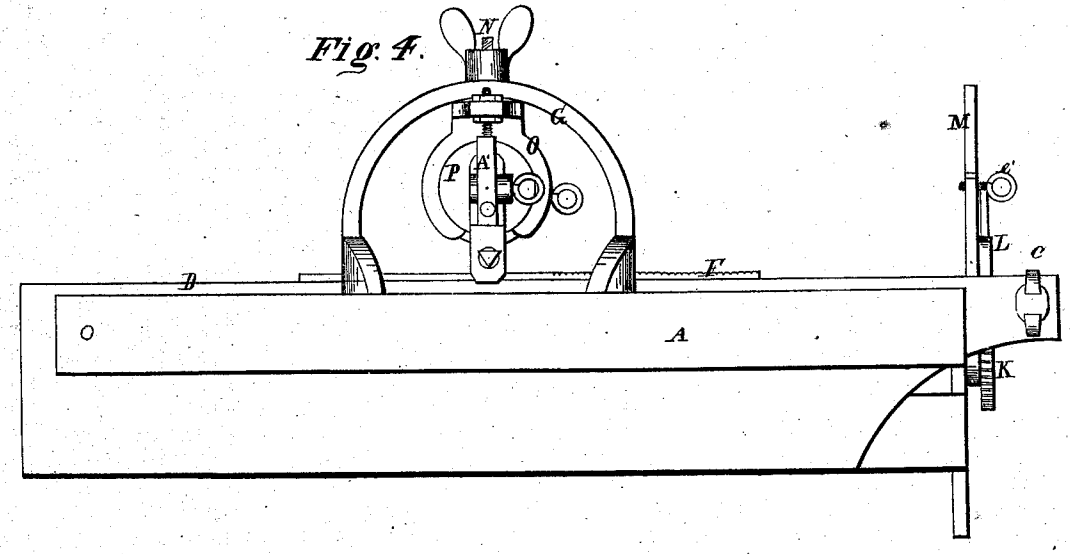


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRED. W. BENJAMIN, OF JEFFERSON, ASSIGNOR OF ONE-HALF HIS RIGHT TO ABRAM SHEARS, OF SHEFFIELD, OHIO.

IMPROVEMENT IN SAW-FILING MACHINES.

Specification forming part of Letters Patent No. **159,631**, dated February 9, 1875; application filed July 20, 1874.

To all whom it may concern:

Be it known that I, F. W. BENJAMIN, of Jefferson, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Saw-Filing Machines, whereof the following is a description, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a front view of the saw-filing machine. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is a view of the rear side.

Like letters of reference refer to like parts in the several views presented.

The object of this invention is to facilitate the filing of saws; and it consists in certain devices whereby the file is held in proper relation to the angle of the saw-teeth, by which means a greater uniformity in the size and angle of the teeth is obtained than when the filing is done by holding the file in the hand in the ordinary way.

Of the above-specified invention the following is a more full and complete description:

In the drawings, A B represent two sections comprising the base of the machine. Said sections are secured to each other by set-screws C. The sections form a clamp between the jaws D E, Fig. 2, of which is held the saw F. On the top of the base or clamp is arranged a frame, consisting of the arch G and the circular base H, Figs. 1 and 2. Said frame is secured in position by one edge of the circular base passing under the grooved projection *b* of section A of the clamp, as shown in Fig. 3. The opposite side of the circular base is secured by a nut, I, in which works the screw J, whereby the frame is made to slide reciprocally along the top of the clamp. The screw referred to is operated by a ratchet-wheel, K, and pawl L, Fig. 3. Said pawl is pivoted to a lever, M, at the point *a*, whereby it is operated for actuating the screw. *c*, Fig. 3, is a spring fixed in the upper end of the pawl, and whereby the pawl is made to engage the wheel K. From the crown of the arch G, referred to, is suspended, by the screw N, a yoke, O, Fig. 4, in which is closely, but loosely, fitted a center-piece, P, having a slot, *d*, Fig. 1, therein, in which is fitted a slide, Q, Fig. 3. To the slide is secured the saw-file R, Fig. 3, by means of the arms S T. The arm S is attached to the slide by the set-screw *e*, by which screw it can be adjusted thereon, whereas the arm T is rigid. U is a guide, whereby the end of the slide Q is supported and guided in operating the file. The guide works in the hanger A′, depending from the arm B′, projecting from the yoke O, referred to.

The practical operation of the above machine is as follows: The saw to be filed is secured in the jaws D E by the set-screws C, as shown in Figs. 2 and 4. In order to adjust the file to the rake of the saw-teeth, the center P, through which the slide Q passes, is turned in the yoke, as indicated by the dotted lines *f*, Fig. 1, which, when properly adjusted, is secured thus by the set-screw C′. The file is also adjusted transversely in its relation to the saw, for filing the bevel of the saw-teeth, by turning the yoke O in either direction, as the right or left hand teeth of the saw may require, as indicated by the dotted lines *b*′, Fig. 2, in which position the file is held by the set-screw N. The file having been properly adjusted to the character of the saw-teeth, the operator now files them by taking hold of the handle D′, and thereby pushing the file across the saw, as would be done in the ordinary way. The slide Q and the guide U will hold the file so that it shall move steadily and in the right direction for filing the tooth with which the file is engaged. The first tooth being filed, the next in order is to be operated upon. To this end the file is moved along to the next tooth by means of the screw J, turned by the wheel and pawl K L, operated by the lever M. This will move along the nut I, and, consequently, the frame holding the file. To insure certainty and uniformity in the distance that the file shall move to engage the saw-teeth is the purpose of the stop E, against which the pawl strikes. Said stop is adjusted on the plate F′, according to the distance of the teeth successively to be filed. The teeth being filed upon one bevel, the position of the file is changed to suit the unfiled bevel, as indicated by the dotted lines *c*′, Fig. 2. In order to work the file back from tooth to tooth of the saw, the pawl is changed in its engagement with the wheel by removing the pin *c*′

from the lever and inserting it in the hole *f*, so as to hold the spring on that side of the lever, which will cause the opposite corner of the pawl to engage the wheel, and thereby work the screw in the opposite direction, and carry back the frame and file along the saw.

By the use of this device for filing saws the teeth thereof will all be of a uniform angle, and thus insure a more perfect working of the saw than when the filing is done in the ordinary way.

It is sometimes necessary to file a tooth deeper on one side than on the other. To this end the outer end of the file can be depressed by the hanger A′, which may be shortened or lengthened, as may be required, by means of the nuts *h n*, Fig. 3.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the reciprocating carriage G H, yoke O, pivoted within the carriage by means of the horizontal screw and nut *n*, and provided with arm B′ and adjustable hanger *a*′, file-guide P, and holder Q, substantially as and for the purpose described.

FRED. W. BENJAMIN.

Witnesses:
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