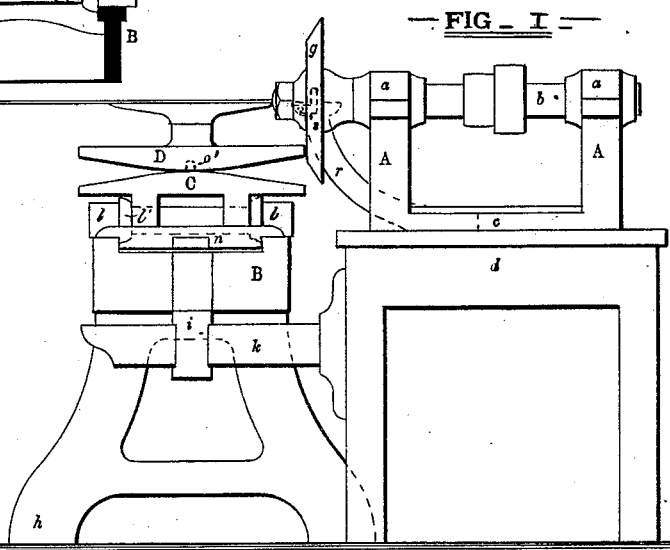
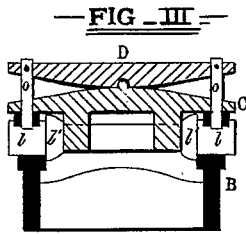
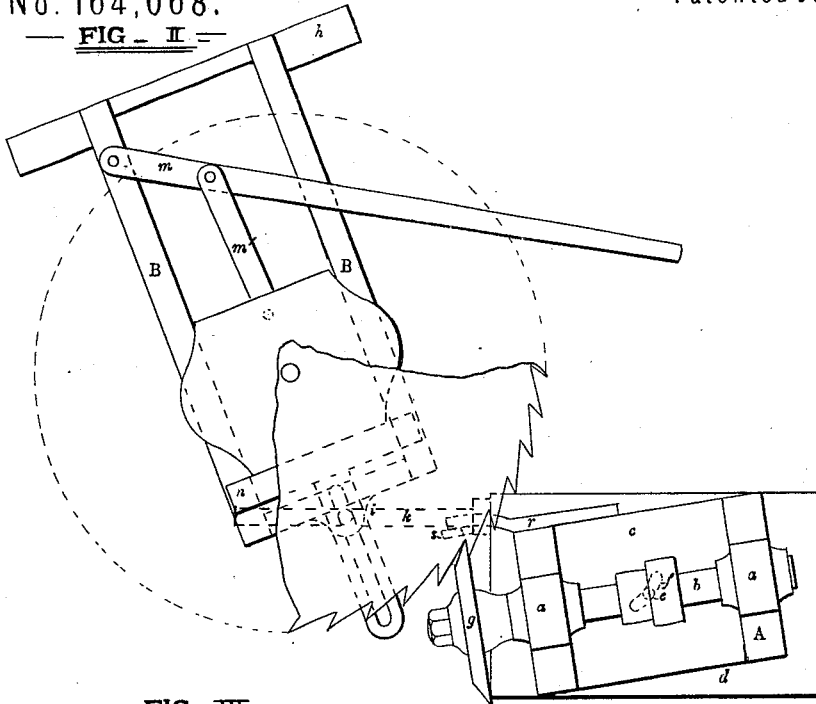


P. D. BURGHER.  
Saw-Sharpening Machine.

No. 164,068.

Patented June 1, 1875.



— WITNESSES —  
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# UNITED STATES PATENT OFFICE.

PETER D. BURGHER, OF DEEP CREEK, VIRGINIA.

## IMPROVEMENT IN SAW-SHARPENING MACHINES.

Specification forming part of Letters Patent No. **164,068**, dated June 1, 1875; application filed September 2, 1874.

*To all whom it may concern:*

Be it known that I, PETER D. BURGHER, of Deep Creek, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Machine for Sharpening Circular Saws, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to a machine for the above purpose, in which the sharpening is accomplished by the saw being brought into contact with a revolving grinding-disk or emery-wheel, and adapted, as hereinafter fully described, to allow the movement of the saw, during the grinding operation, to the various positions found necessary to give the required superficial outline to the teeth, and the desired angle to the cutting-edges thereof. My invention relates, further, to means designed to facilitate the movement of the saw longitudinally of a track, and toward the grinding mechanism, the direction being, to a certain extent, alterable, by reason of the peculiar construction of the saw-holding devices, and the relation which they bear to the movable frame of the revolving disks aforesaid, and to other features looking to the shaping and grinding of the teeth uniformly in respect to length, angle of cutting-edge, and radial projection from the center of the saw-spindle.

In the description of my invention which follows, due reference must be had to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a side view of the machine, partly in section, showing the two frames of the machine with their attachments at a right angle. Fig. 2 is a plan of the invention, the several members of the same occupying the positions which they are made to assume at one stage of the process. Fig. 3 is a view of a detached portion of the invention.

Similar letters of reference indicate similar parts in all the figures.

A is a stand, provided with the bearings *a*, in which the shaft *b* revolves. The stand A is secured to a plate, *c*, pivoted to the frame *d*, the means of connection being a bolt, *e*, fitted

to pass loosely through a curved slot, *f*, in the plate, into the frame *d*, to which it is fastened. By this means the stand A, with the shaft *b* and grinding-disks *g* fastened to the said shaft, are allowed to move in the same plane independently of the frame *d*, for purposes hereinafter set forth. B is a track, supported at one end by a leg, *h*, the other end being pivoted to a clamp, *i*, adapted to slide upon an arm, *k*, extending from the frame *d*. The arm *k* is made adjustable in height, for the purpose of elevating or depressing the inner end of the track, to which it is indirectly connected. C is a carriage, resting upon rollers *l*, and capable of being moved longitudinally upon the track B, the said movement being transmitted from the hand of the operator through the medium of the handle *m* and link *m'*. The movement of the carriage toward the grinding mechanism is limited by the position of the sliding stop *n*, which comes in contact with the inner end of the carriage. Lateral motion of the rollers and carriage is prevented by means of the collars *o*, which fit closely between the two sections of the track. The upper surface of the carriage C is curved laterally, and in this respect corresponds with the lower side of the plate D, which bears thereupon. A spindle, flange, or other contrivance, is secured to the upper side of the plate D, upon which the saw to be operated upon is held, but in such manner as to allow a free rotary motion thereof.

My object in making the inner surfaces of the carriage and plate curved, as described, is to give the oblique position which it is necessary for the saw to occupy in order to obtain a certain angle of cutting-edge for the teeth. In such cases the oblique position is maintained by means of the bolts *o* and projecting strip *o'*, which occupies a recess in the plate D.

The operation of sharpening saws by means of my invention is as follows: The saw having been secured to the plate D, either through the agency of a spindle passing through the center thereof, as shown in the drawing, or by means of a flange projecting from the plate, the track B is moved to a position that will bring the cutting-edge of the saw parallel to the back or flat side of the emery-wheel, and the saw inclined laterally by means of the ad-

justing-screws *o*. The stop *n* is then fastened at a point which will give the carriage the necessary movement, and regulate the length of tooth required. The several movable parts of the machine having thus been adjusted and secured in their respective places, the emery-wheels are put in revolution, and the saw moved toward the one to be used, by means of the handle *m*. One tooth of the saw is thus brought into contact with the revolving wheel and ground, the tooth during the operation resting upon a cross-piece, *r*. After the completion of the tooth the saw is withdrawn and partially revolved, and the next tooth moved into position, the stop regulating the forward movement in each case, as before described. The entire number of teeth having been ground, their points are, by another complete revolution of the saw, successively brought into contact with the beveled edge of the wheel, to grind them to a uniform distance from the center of the saw-spindle. During this final operation the gage *s* is brought into requisition, and secured in such a manner as to give the required angle to the point of the teeth.

It will be understood that, as the emery-wheels, saw-holding devices, and track are adjustable, a great variety of positions of the saw with reference to distance from the emery-wheel and angle of track can be obtained;

and that teeth of all descriptions of outline and degree of inclination of cutting-edge, may be ground rapidly, and to a uniform size and shape.

The invention, as described, is applicable to circular saws of all descriptions and sizes; but particularly adapted to the peculiar kind of saw used in the manufacture of shingles, owing to their large diameter and excessive weight.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The carriage *D*, having a rounding under face, plate *C*, having a corresponding upper face, and the projecting strip *o'*, fitting into *D*, in combination with the adjusting-screws *o* and rollers *l'l'*, the whole resting upon a track, and forming a longitudinally-sliding and oscillatory-adjustable support for the saw, substantially as herein set forth.

2. The vertically-adjustable arm *k*, and clamp *i*, in combination with the frame *d* and track *B*, substantially as set forth.

In testimony whereof I have hereunto subscribed my name this 12th day of August A. D. 1874.

PETER D. BURGHER.

Witnesses:

H. F. BRETT,  
LONSDALE J. ROPER.