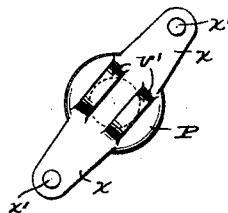


2 Sheets—Sheet 1.

Patented Sept. 3, 1889.



Fig. 6



Inventor/
August F. Radant
By J. H. Stent & H. H. Woodward
Attorneys

(No Model.)

2 Sheets—Sheet 2.

A. F. RADANT.
SAW SHARPENING MACHINE.

No. 410,444.

Patented Sept. 3, 1889.

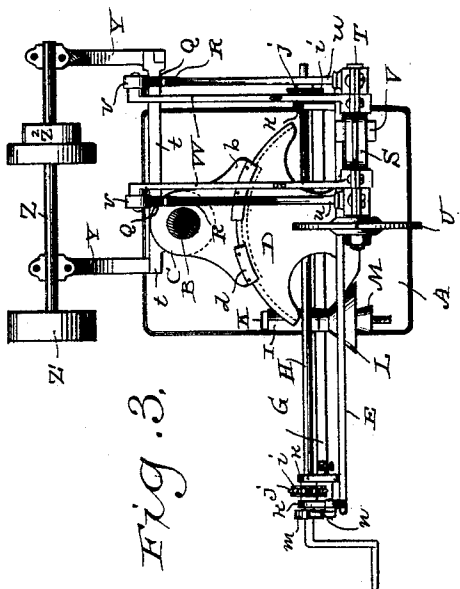


Fig. 3.

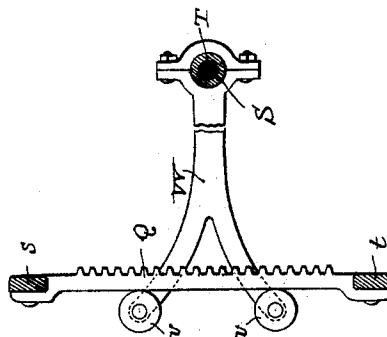


Fig. 5.

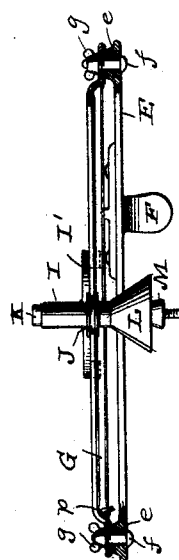


Fig. 4.

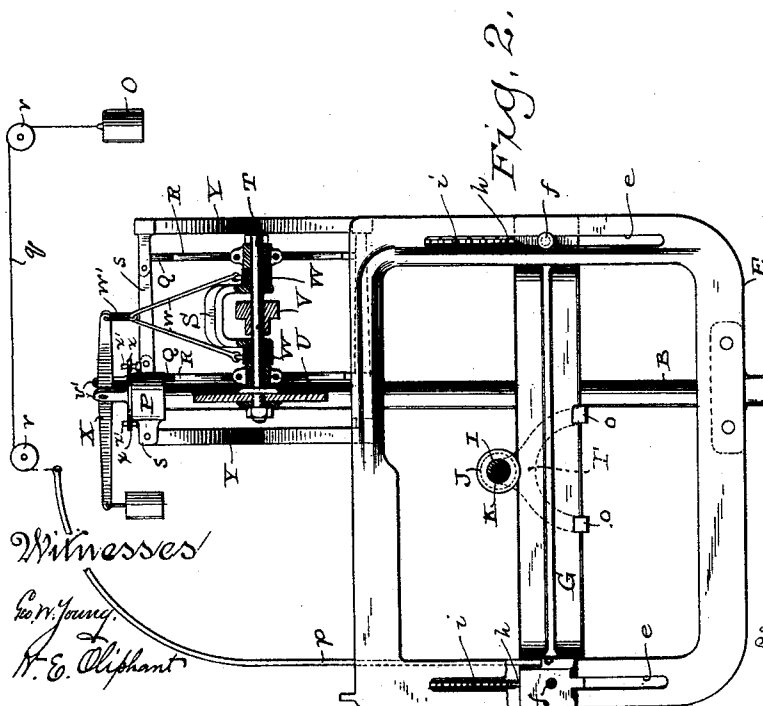


Fig. 2.

Witnesses
Geo. W. Young,
H. E. Cliphant

Inventor
August F. Radant
By J. H. Hunt & H. W. Wood
Attorneys

UNITED STATES PATENT OFFICE.

AUGUST F. RADANT, OF WAUSAU, WISCONSIN.

SAW-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,444, dated September 3, 1889.

Application filed June 6, 1889. Serial No. 313,347. (No model.)

To all whom it may concern:

Be it known that I, AUGUST F. RADANT, of Wausau, in the county of Marathon, and in the State of Wisconsin, have invented certain new and useful Improvements in Saw-Sharpening Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to machines for sharpening circular saws; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a side elevation, partly in section, of a saw-sharpening machine constructed according to my invention; Fig. 2, a front elevation partly in section; Fig. 3, a plan view partly in horizontal section; Fig. 4, a similar view of the saw-carrying frame; Fig. 5, a detailed view of a rack and adjustable bearing that form parts of my machine, and Fig. 6 a detail plan view of a cap-piece for the standard of my machine.

Referring by letter to the drawings, A represents a base and B a vertical standard that support the various other elements that go to make up a saw-sharpening machine constructed according to my invention. At a certain elevation a collar C is made fast to the standard B, and projected from this collar is a horizontal flange *b*, provided with a groove or guide *c* for a segmental plate D, the latter being retained in the groove by means of an overlapping guard *d*, attached to said flange. Rigidly connected to the segmental plate D is a rectangular frame E, provided with a depending goose-neck F, the latter being pivotally connected to the base A, as best illustrated in Fig. 1. The vertical sides of the frame E are provided with longitudinal slots *e*, that serve as guides for bolts *f*, these bolts being passed through the ends of a transverse track-bar G to engage set-nuts *g*, the latter serving to clamp said track-bar in any position to which it may be vertically adjusted. Connected to eyes *h* on the upper edge of the track-bar G are chains *i*, that engage sprocket-wheels *j* on a crank-shaft H, the latter having its bearings in arms *k* at the upper end of the frame E, as best illus-

trated in Fig. 3. By loosening the set-nuts *g* and operating the crank-shaft H the track-bar G may be readily adjusted in a vertical direction, and said crank-shaft is preferably provided with a ratchet-wheel *m*, that engages with a stop-pawl *n* to check against the weight of said track-bar.

Loosely arranged on a sleeve I is a roller J, that travels on the upper edge of the track-bar G, and the sleeve is provided with a depending yoke I', having upturned ends *o*, for engagement with the lower edge of said track-bar, as is best illustrated in Fig. 1. The sleeve I forms a bearing for a spindle K, and on this spindle I arrange saw-chucks L M, the chuck M being adjustable and of a conical shape, to accommodate the arbor-openings of different diameters. To hold the chuck M in its adjusted position, I employ a hand-wheel N, arranged on the screw-threaded outer end of the spindle K, as illustrated in Fig. 1.

As shown in Fig. 2, the greater portion of the frame E is on one side of the standard B, and to balance said frame I attach a curved rod *p* thereto, on that side farthest from said standard, and connect the upper end of this rod with a cord *q*, that is arranged on suitably-hung pulleys *r*, to support a counterweight O. Supported on the upper end of the standard B is a cap P, provided with lateral projections *s*, that extend in opposite directions, and the collar C on said standard is provided with similar projections *t*, that also extend in opposite directions. Bolted or otherwise suitably connected to the lateral projections *s t* on the cap P and collar C are vertical racks Q, that engage with toothed segments R, the latter having screw-threaded extensions *u*, that connect with a yoke S, this yoke being provided with bearings for a shaft T, that carries a grinding-wheel U and cone-pulley V, as best illustrated in Fig. 2. Rearwardly-extended arms W are loosely clipped to the yoke S, and carry anti-friction rollers *v*, that travel on the rear edges of the racks Q, as shown in Figs. 1, 3, and 5. A triangular link *w* and straight link *w'* connect the arms W with a counterbalanced lever X, that is pivotally connected to vertical ears *v'* on the cap P, the latter being provided with horizontal extensions *x*, parallel to the lever on

opposite sides of said cap. The extensions x on the cap serve as bearings for stop-screws x' , whereby the throw of the lever X may be readily regulated to correspond with the depth of the teeth on various-sized saws. Brackets Y are made fast to the lateral projections s t on the cap P and collar C, and these brackets are provided with bearings for a shaft Z, that carries a driving-pulley Z' and cone-pulley Z², the latter being designed for belt-connection with the cone-pulley V on the shaft T, whereby the grinding-wheel U may be rotated at different speeds.

In the operation of my machine a saw is clamped between the chucks L M, and the carriage, formed by the sleeve I, roller J, and yoke I', is adjusted on the track-bar, in order to have the grinding-wheel U strike the saw at the proper angle, said track-bar being also adjusted to bring said saw to the proper elevation. The suspended yoke S is now lowered and raised by the operator to bring the grinding-wheel in and out of contact with the saw. The toothed segments R are centered on the shaft T, and in consequence of this arrangement the fall and rise of the grinding-wheel U are always on a vertical line regardless of the rock of said segments. When it is desired to bevel the edges of the saw-teeth, the frame E is turned on its pivot to the required angle, and it will be noticed that said pivot (the lower end of the goose-neck F) is in line with the grinding-wheel U, whereby said grinding-wheel is always just over the tooth to be worked upon regardless of the adjustment of said frame; or, in other words, the frame turns on a line struck through the pivot end of the goose-neck and the center of the grinding-wheel.

While I have described the segments R as provided with teeth to mesh with racks Q, it is obvious that the teeth may be omitted from said segments, and instead of the racks I would employ tracks for the latter form of segments.

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

1. In a saw-sharpening machine, the combination of a pivoted frame, a transverse track-bar vertically adjustable on the frame, and a saw-carriage laterally adjustable on the track-bar, substantially as set forth.

2. In a saw-sharpening machine, the combination of a pivoted frame having vertical sides provided with guides, bolts arranged in the guides, a transverse track-bar supported on the bolts, set-nuts arranged on said bolts to impinge against the track-bar, a crank-shaft journaled in the frame, sprocket-wheels carried by the shaft and chains passed over the sprocket-wheels and connected to the track-bar, and a saw-carriage laterally adjustable on said track-bar, substantially as set forth.

3. In a saw-sharpening machine, the combination of a rectangular frame having a depending goose-neck pivoted to a suitable

base, a segmental plate connected to the upper side of the frame, a guide for this plate, a transverse track-bar vertically adjustable on said frame, and a saw-carriage laterally adjustable on the track-bar, substantially as set forth.

4. In a saw-sharpening machine, the combination of a pivoted frame having the greater portion thereof on one side of its pivot-point, a counter-balance for the frame, a track-bar vertically adjustable on said frame, and a saw-carriage laterally adjustable on the track-bar, substantially as set forth.

5. In a saw-sharpening machine, the combination of a pivoted lever, a yoke having rearwardly-extended arms linked to the lever, a revoluble shaft having its bearings in the yoke, a grinding-wheel carried by the shaft, segments connected to said yoke to center on the shaft, and tracks for the segments, substantially as set forth.

6. In a saw-sharpening machine, the combination of a pivoted lever, a yoke having rearwardly-extended arms linked to the lever, a revoluble shaft having its bearings in the yoke, a grinding-wheel carried by the shaft, segments connected to said yoke to center on the shaft, tracks for the segments, and anti-friction rollers arranged on said yoke-arms to travel on said segment-tracks, substantially as set forth.

7. In a saw-sharpening machine, the combination of a pivoted lever, a yoke having rearwardly-extended arms linked to the lever, a revoluble shaft having its bearings in the yoke, a grinding-wheel carried by the shaft, toothed segments connected to said yoke to center on the shaft, and racks arranged to engage the segments, substantially as set forth.

8. In a saw-sharpening machine, the combination of a pivoted lever, adjustable stops for the lever, a yoke having rearwardly-extended arms linked to the lever, a revoluble shaft having its bearings in the yoke, a grinding-wheel carried by the shaft, segments connected to said yoke to center on the shaft, and tracks for the segments, substantially as set forth.

9. In a saw-sharpening machine, the combination of a pivoted lever, a yoke having rearwardly-extended arms linked to the lever, a shaft having its bearings in the yoke, a grinding-wheel and a pulley carried by the shaft, segments connected to said yoke to center on the shaft, tracks for the segments, suitably-arranged brackets, a drive-shaft having its bearings in the brackets, and a pulley arranged on the drive-shaft for belt-connection with the pulley on the shaft that carries said grinding-wheel, substantially as set forth.

10. In a saw-sharpening machine, the combination of a base, a standard connected to the base, a collar arranged on the standard and provided with a flange having a segmental guide, a frame having a depending

goose-neck pivoted to said base and a top
plate arranged to work in the segmental
guide, a track-bar vertically adjustable on
the frame, a saw-carriage laterally adjustable
5 on the track-bar, a pivoted lever supported
on said standard, a yoke having rearwardly-
extended arms linked to the lever, a revoluble
shaft having its bearings in the yoke, a
grinding-wheel carried by the shaft in line
10 with the goose-neck pivot, segments con-
nected to said yoke to center on the shaft,

and tracks for the segments, substantially as
set forth.

In testimony that I claim the foregoing I
have hereunto set my hand, at Wausau, in 15
the county of Marathon and State of Wis-
consin, in the presence of two witnesses.

AUGUST F. RADANT.

Witnesses:

JOHN LIVERMORE,
SAM KRIDER.