

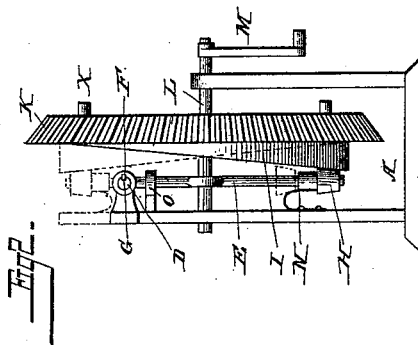
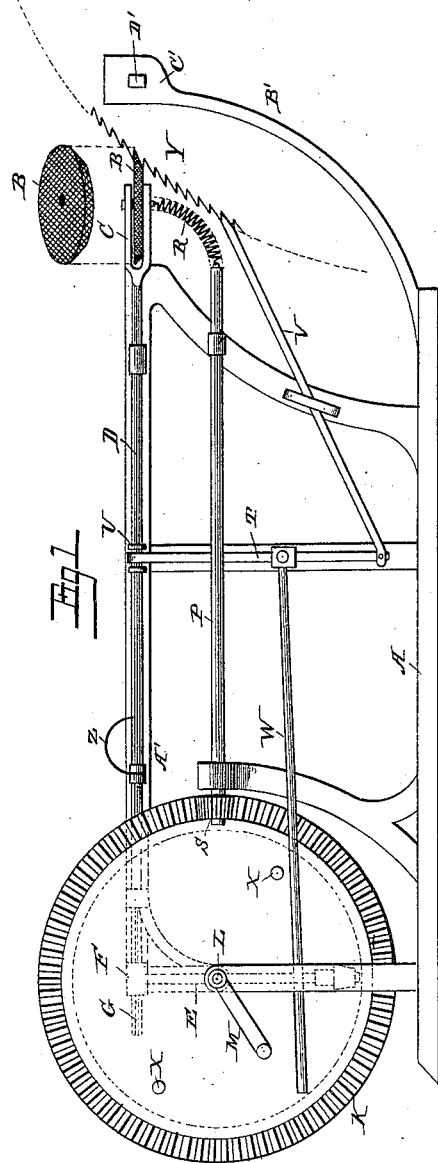
(No Model.)

L. SCHEVENELL.

SAW SHARPENER.

No. 348,143.

Patented Aug. 24, 1886.



Attests:

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UNITED STATES PATENT OFFICE.

LEONARD SCHEVENELL, OF ATHENS, GEORGIA, ASSIGNOR OF ONE-HALF TO
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SAW-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 348,143, dated August 24, 1886.

Application filed June 11, 1886. Serial No. 204,861. (No model.)

To all whom it may concern:

Be it known that I, LEONARD SCHEVENELL, a citizen of the United States, and residing at Athens, county of Clarke, State of Georgia, have invented certain new and useful Improvements in Saw Sharpeners and Gummers, of which the following is a specification.

This invention relates to that class of saw sharpeners and gummers in which the operations of sharpening and gumming are performed simultaneously; and it consists in combining with a revolving file for sharpening and gumming the saw a novel means of operating the same, and also of imparting to the said file a rocking motion at right angles to its plane of revolution.

In the drawings, Figure 1 represents a side elevation of my improved device, showing it in operative relation with a saw, and Fig. 2 an end elevation of the same, showing the driving mechanism and its connections.

The revolving sharpening and gumming file B, I prefer should be disk-like in shape, with the edge beveled, so as to be inserted easily into the throat of the tooth being operated upon. The said disk B is mounted in the bifurcated end C of a rock-shaft, D, journaled in the frame of the machine, the said frame being designated in the drawings by A. The said shaft D has imparted to it a rocking movement at right angles to the plane of the revolution of the disk B, and a longitudinal movement in its bearings.

In order to impart the said rocking movement to the shaft D, I provide the same, near the rear end, with a pendent rod or arm, E, secured to said shaft by a collar or sleeve, F, in which is a groove for the reception of a spline or feather, G, on the shaft. The arm E carries at its lower end a roller, H, engaging with a cam-surface, I, on one side of a drive-wheel, K, mounted on a shaft, L, the latter being journaled in the frame A, and operated by a crank, M, or by other suitable means. The roller on the arm E being maintained in constant contact with the cam-surface I by a spring, N, Fig. 2, the said arm is oscillated through an arc equal to the relative rise and fall of the said cam-surface, and causes the shaft D and the disk-file carried thereby to rock, while a simultaneous longitudinal

movement of the shaft is permitted, as the spline thereon will move freely in the grooved sleeve, from which the arm E depends. The arm E is prevented from moving longitudinally with the shaft by means of suitable bearings attached to the frame A—such, for instance, as shown at O—or the arm may embrace the drive-wheel shaft, or both means may be employed.

I do not wish to confine myself to the depending arm for rocking the shaft, as an arm may project above the shaft, as shown in dotted lines, Fig. 2, or laterally from it; also various forms of cams may be used in place of the one shown, whereby the shaft may be caused to rock more than once during the revolution of the drive-wheel. Neither do I wish to confine myself particularly to a cam for causing the shaft to rock, as there are other known connections for producing the same movement. The disk-file B is revolved by means of a shaft, P, suitably journaled in bearings secured to the frame A, and flexibly connected to the spindle of said disk by any suitable means—such as a coil-spring, R—whereby the disk may be revolved in a plane substantially at right angles to the said shaft P, and may also be rocked and mounted in movable bearings. I prefer to connect the shaft P to the drive-wheel by means of a bevel-pinion, S, meshing with bevel gear-teeth on the periphery of the said drive-wheel.

In connection with the mechanism for sharpening and gumming the saw I employ a means for advancing the saw a distance equal to the space between the points of the teeth. I prefer that the operation of the said means should be automatic and connected to the main driving mechanism, and I have shown one means by which such operation may be performed; but I do not wish to confine myself to such means, and do not broadly claim the same as of my invention.

To a suitable point on the frame A, I pivotally secure an upright lever, T, the upper end being bifurcated, or otherwise formed, to embrace the rock-shaft between collars U, adjusably secured to said shaft. The lower end of the lever T carries a rod or strip, V, suitably guided in the frame, and pivotally connected at one end to the said lever, the other

end of said rod being formed into a head adapted to engage one or more of the teeth of the saw to be operated upon.

Secured to the lever T coincident with pivot-point thereof is an arm or rod, W, extending from said lever across the face of the drive-wheel K, on which are one or more pins or studs, X, adapted to engage and depress the free end of said arm W, thereby moving the lever T on its pivot, the upper end moving rearward and carrying the shaft D and the file B with it, while the lower end of the lever moves forward, causing the rod V to engage one of the teeth in the saw Y and move it a distance equal to the space between the points of the saw-teeth.

Any suitable means may be employed to advance the file to the tooth presented and to simultaneously retract the rod V; but I prefer to employ a spring, Z, secured at one end to the frame A and at the other end to a collar on the shaft D, said collar engaging with a collar, A', fixed on the said shaft. The spring is expanded as the shaft is moved rearward, and when the said shaft is released the spring will advance it to the saw, the shaft carrying the upper end of the lever T forward, and thereby retracting the rod V.

As the saw must be moved to present the succeeding teeth, and still be held firmly during the operation of sharpening and gumming, I provide clamping-arms B', (one only being shown,) projecting forward and upward from the front of the frame A, and each terminating in a clamping-head, C'. These arms B' are placed in close relation, so as to grasp the saw between them, and have sufficient elasticity to hold the saw firmly and still permit the said saw to be moved. I prefer that the contact-surfaces of the said arms be formed of wooden blocks inserted in the heads C', as shown at D', and that the arms be of sufficient length to carry the contact-surfaces on a level with or above the file B. I prefer wooden blocks, as they will hold the saw firmly and still permit it to be moved.

In operating the apparatus I first place it so that the arms B' will embrace and clamp the saw, and the file B will rest in the throat of a tooth. Then by rotating the drive-wheel I cause the file B to revolve with considerable speed by means of the shaft P and connections. At the same time the file B is caused to rock by means of the pendent arm E, connected to the shaft D and contacting with the cam-surface on the drive-wheel. When the drive-wheel has been moved sufficiently far to cause one of the pins X thereon to engage with the arm W, the lever T is moved on its pivot, the upper end retracting the shaft D, and thereby carrying the file B from the saw, and the lower end advancing the rod Y until it engages a tooth and moves the saw, which is supported on its arbor, or in any other suitable manner, a distance equal to the space between the teeth. The pin X then slowly releases the arm W, and the spring Z causes a reverse move-

ment of the said parts, advancing the file B to the saw and retracting the rod V, which falls by gravity onto the incline of the next succeeding tooth, preparatory to again moving the saw.

The apparatus is automatic in its operation, and the sharpening, gumming out of the tooth, and the rounding of the same are performed simultaneously. The springs, connected with the retracting and rocking of the shaft D and the flexible or spring connection R, impart an elasticity to the file in its operation not obtained when fixed or rigid bearings are employed, thus permitting the speed of the cut of the file to be normal, and obviating the forcing of the same.

In order to regulate the length of the arc through which the pendent arm E moves, I may make the roller H adjustable on the arm, and by moving it to or from the axis of the cam impart the desired length of oscillation to said arm.

The apparatus I have described is designed more particularly for treating gin-saws, but may be adapted to gum and sharpen ordinary wood-cutting saws.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A rotating file combined with a supporting rock-shaft, and means, substantially as described, for rocking said shaft, as and for the purpose specified.
2. A rotating file combined with a supporting-shaft, and means for rocking said shaft, consisting of an arm, E, on said shaft, and a rotating cam engaging said arm, substantially as described.
3. The combination, with a driving mechanism, of a rotating file, a movable support for the same operated by said mechanism, and flexible connections between the said driving mechanism and the file, whereby the said file is rotated and its support operated simultaneously, substantially as described.
4. The combination, with a rotating file, of flexible connections therefrom to the driving mechanism for rotating the said file, a rock-shaft supporting said file, and means, substantially as described, for rocking said shaft, substantially as set forth.
5. The combination, with a rotating file, of flexible connections therefrom to the driving mechanism for rotating said file, a rock-shaft supporting said file, an arm on said shaft, and a cam engaging said arm for rocking said shaft, substantially as described.
6. The combination, with a rotating file, of a rock-shaft having a longitudinal movement, and means, substantially as described, for rocking and moving the said shaft, substantially as described.
7. The combination, with a rotating file, of a rock-shaft supporting the same and having a longitudinal movement, means, substantially as described, for rocking and moving the shaft, and a flexible connection between the driving

mechanism and the said file, substantially as described.

8. The combination, with a rotating file, of a rock-shaft supporting the same and having a longitudinal movement, means, substantially as described, for rocking and moving said shaft, and a saw-advancing mechanism moving simultaneously with the longitudinal movement of the said shaft, substantially as described.

9. The combination, with a rotating file, of a rock-shaft supporting the same and having a longitudinal movement, means, substantially as described, for rocking and moving said shaft, a saw-advancing mechanism moving simultaneously with the longitudinal movement of the shaft, and a flexible connection between the file and the driving mechanism, whereby the file is rotated, substantially as described.

10. The combination, with a rotating file, of a rock-shaft supporting the same, an arm attached to said shaft by means of a sleeve or collar through which the shaft is adapted to move longitudinally, and a cam engaging said arm to rock the shaft, substantially as described.

11. The combination, with a rotating file, of a rock-shaft supporting the same, an arm at-

tached to the shaft, a drive-wheel having on one side a cam engaging the said arm, and also provided with gear-teeth, a shaft carrying a bevel-pinion engaging said gear-teeth, and a flexible connection between the said shaft and the file, substantially as described.

12. A saw sharpener and gummer consisting of a rotating file, a rock-shaft supporting the same, a cam engaging an arm on the rock-shaft for rocking the shaft, a drive-wheel carrying the cam, a shaft having flexible connection with the file and carrying a pinion meshing with gear-teeth on the drive-wheel, a lever connected to the rock-shaft to move the same longitudinally, a rod connected to the lever and adapted to engage the saw to move the same, and an arm connected to the lever, and engaging pins or studs on the drive-wheel and operating the lever, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEONARD SCHEVENELL.

Witnesses:

W. B. JACKSON,
T. H. NICKERSON.