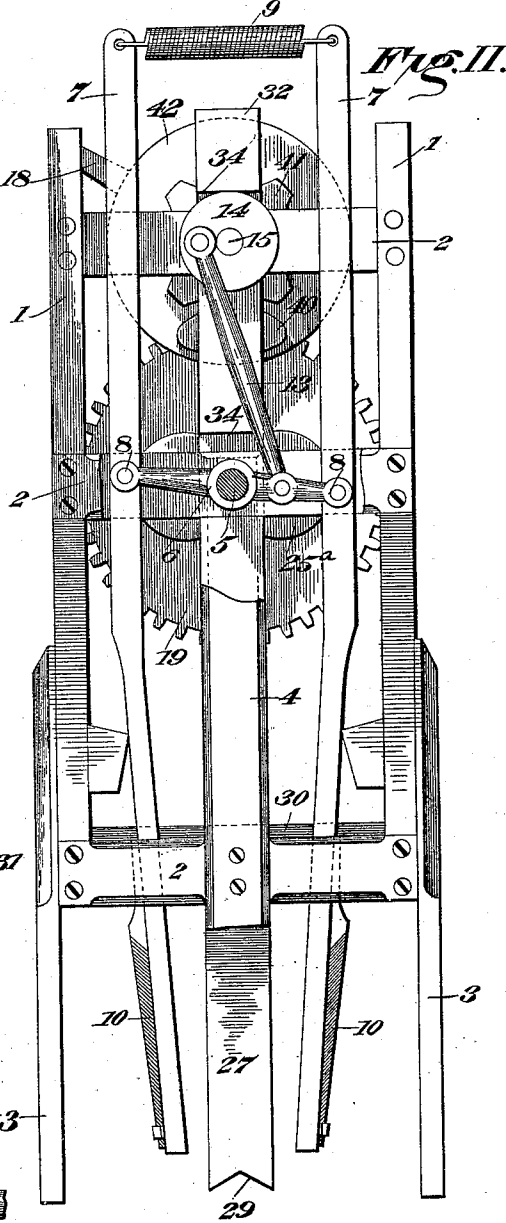
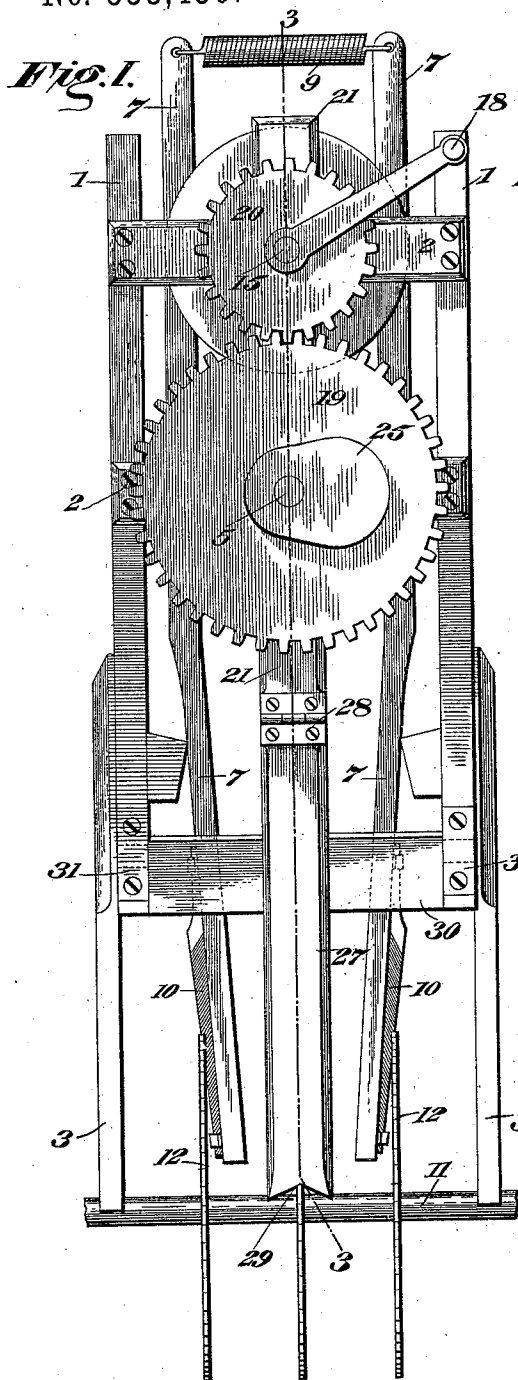


J. D. CROMER.
GIN SAW SHARPENING MACHINE.

No. 553,450.

Patented Jan. 21, 1896.



Witnesses
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S. W. Allen

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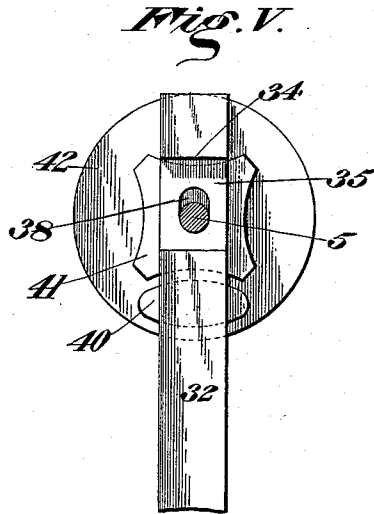
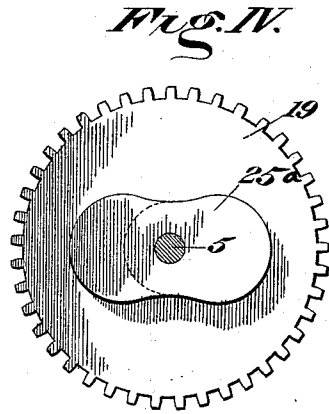
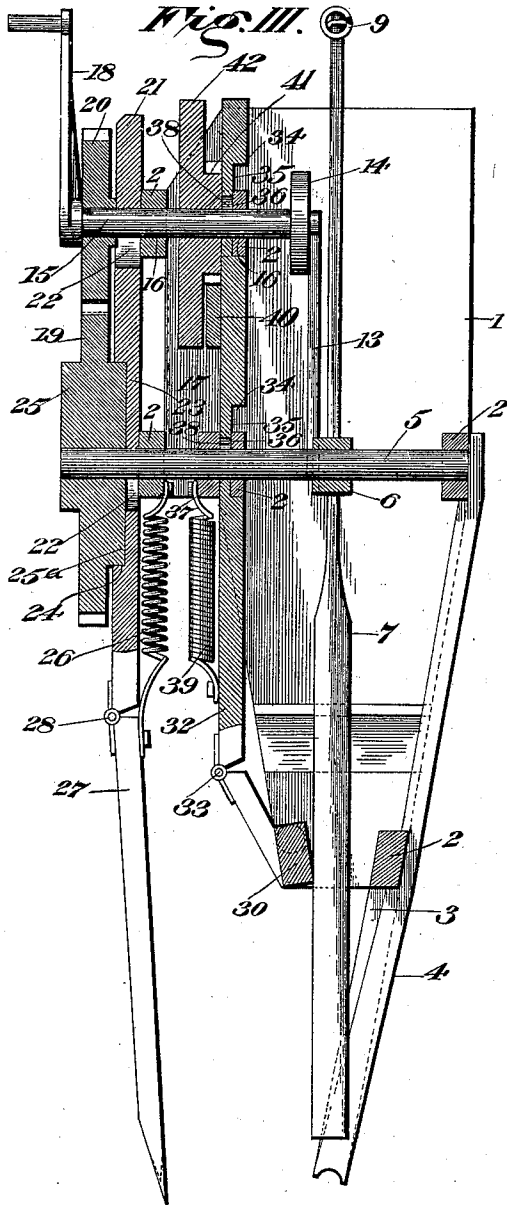
(No Model.)

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UNITED STATES PATENT OFFICE.

JEROME D. CROMER, OF CARNESVILLE, GEORGIA.

GIN-SAW-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,450, dated January 21, 1896.

Application filed October 18, 1894. Serial No. 526,326. (No model.)

To all whom it may concern:

Be it known that I, JEROME D. CROMER, of Carnesville, county of Franklin, State of Georgia, have invented certain new and useful Improvements in Gin-Saw-Sharp-
5 Machines, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce a
10 device for facilitating the sharpening of gin-saws in the best manner for use; and it consists in the combination and arrangement of parts hereinafter described in detail in the
15 specification, and succinctly specified in the appended claims.

In the accompanying drawings, Figure I is a front elevation of my sharpener, and showing its relation to a saw-mandrel. Fig. II is a rear view with part of the frame removed.
20 Fig. III is a longitudinal section on the line 3 3 of Fig. I. Fig. IV is a view of one side of the feed-driving gear, and Fig. V is an inside view of the file-feed-driving wheel, showing its cam, and in dotted lines the projection
25 upon the file-feed-driving bar against which the cam works.

In the accompanying description, reference is made to the figures on the drawings.

The frame of my machine consists preferably of two downwardly-tapering side pieces
30 1 firmly united together, as by cross-pieces 2. It is preferably provided on its lower end with two outer legs 3 and a middle leg 4, all arranged so as to come in line directly under
35 the frame for supporting it steadily.

5 indicates the file-driving shaft, which by a cross or rock arm 6, for example, imparts
40 reciprocatory motion to the file-carrying arms 7, with which, respectively, it is at each end pivotally united, as indicated at 8. The file-carrying arms are yieldingly spread at their lower ends, as by a tensile spring 9 secured to their upper ends and tending to draw the
45 upper ends toward each other. The office of the spring is to force the lower ends of the file-carrying arms, to which the files 10 are fixed, outwardly into firm engagement with the saw-teeth which they are designed in
50 practice to sharpen. A saw-mandrel 11 with saw-teeth 12 is shown in Fig. I. The mandrel is supposed to be revolvably supported in suitable bearings. (Not illustrated.) A rock-

ing motion is imparted to the shaft 5 by a pitman 13 driven by an eccentric 14 that is carried by a shaft 15 within suitable bearings 16
55 in the two adjacent cross-pieces 2 that occupy the upper part of the frame. The cross-pieces on the front of the machine are duplicated to afford firm bearing for the driving mechanism and are spaced, as by a strip 17.
60

Power may be applied to drive the shaft 15, as by a crank-handle 18.

19 indicates a gear revolvably fastened, as by a pin, to the forward end of the shaft 5 and meshing with a gear 20 secured to the shaft
65 15. The gear 20 is preferably smaller than the gear 19 in order to secure the proper timing of the revolutions of the latter; but the relative dimensions may be varied at will.

21 indicates a reciprocatory feed-bar and is
70 preferably provided with longitudinal slots 22, which receive the ends of the shafts 5 and 15, respectively, so that they may act as guides for directing the reciprocal motion of the
75 feed-bar.

23 indicates a recess in the face of the feed-bar provided with a shoulder 24, against which
80 a cam 25, secured on the side of the gear 19, works. The shoulder 24 is drawn toward the cam, as by a tensile spring 26 secured at one
85 end to the cross-piece 2 and at the opposite end to the feed-piece 27 that is hinged to the feed-bar at 28. Thus the spring serves not only to hold the shoulder 24 in engagement
85 with the cam 25, but also to hold the feed-piece against the edge of the saw.

The reciprocations of the feed-piece which rotates the saw are designed to vary relatively to the reciprocations of the files. To accomplish this variation I employ, in connection
90 with the cam 25, a double cam 25^a upon the side of the gear 19 opposite to the single cam 25. Ordinarily it will be desirable to have the files reciprocate at least twice across the face of each tooth before the next tooth of the saw
95 is presented, in which event the gear 19 will be so placed that the single cam will be in operative relation with the shoulder 24 and the feed-piece. By virtue of the difference
100 in size of the intermeshing gears 19 and 20, the operation of which reciprocates the file-drivers through intermediate mechanism, the files will be reciprocated twice to each reciprocation of the feed-piece. If, however, it is

desired to reciprocate the files and feed-piece alternately, the gear 19 is reversed to bring the double cam in operation, when, as will be apparent, the file-piece will be reciprocated twice to each revolution of the gear 19 or once for each revolution of the gear 20.

The lower end of the feed-piece is preferably bifurcated, as indicated at 29, so that it straddles the saw and advances it tooth by tooth with each reciprocation, after the manner in which a pawl operates to drive a ratchet-wheel.

In addition to the mechanism already described I prefer to employ file-guide mechanism for the purpose of presenting the file against the cutting-faces of the teeth—in other words, to cause the file when introduced within the V-shaped notch between the teeth to bear particularly against one side of the recess. This mechanism preferably consists of an eccentrically-pivoted guide-piece 30 carried in bearings 31 in the side pieces 1, and which is caused to oscillate by a file-guide-driving bar 32 hinged, as indicated at 33, to the file-guide piece. The file-guide bar is preferably provided with oblong recesses 34 which define bearing-ways 35, upon which the file-feed bar reciprocates within apertures 36 formed in the cross-pieces 22 and defined as by cap-plates 37. It is necessary, however, that the pressure exerted by the guide-piece 30 upon the drivers be withdrawn when the saw is fed to present another tooth, and in order to decrease the friction incident to this device I prefer to make the pressure intermittent, and for this purpose the file-guide bar is provided with longitudinal slots 38, which receive the shafts 5 and 15, respectively, and is guided by them in the same manner as the feed-bar 21 is guided by them. The file-guide bar 32 is retracted, as by a tensile spring 39, secured at one end to the cross-pieces 2 and at the other end to the bar 32, and tends normally to hold the guide-piece 30 out of engagement with the file-driving arms and keep its projection 40 in engagement with a three-arm cam 41, secured to a file-guide-driving wheel 42, that is fixed to the shaft 15 between the upper cross-pieces 2. Thus it will be seen that during each rotation of the shaft 15 the guide-driving bar 32 will be forced downwardly four times to swing the eccentrically-pivoted guide-piece 30 against the file-carrying arms for producing the intermittent pressure before referred to.

In operation the machine is set so that its

legs support it upon the saw-mandrel above the saw, as illustrated in Fig. I. The files engage with the saws at the proper angle and by the operation of the file-carrying arms 7 are caused to reciprocate obliquely across the edge of the saw, their cut being properly directed by the guide-piece 30, whose movements are controlled by the wheel 42, that is driven by the same shaft 15 that drives the files. The intermittently-actuating feed mechanism, consisting, for example, of the feed-bar and feed-piece, is driven also by the rotation of the shaft 15, to which the cam-gear 19 is geared, and advances the saws tooth by tooth, as required.

It is desirable to employ three feet upon my machine, because when the end saws are to be sharpened but one file can be brought into operation, and it is necessary for that reason to provide means for firmly supporting the machine under all conditions.

What I claim is—

1. In a gin saw sharpening machine, the combination with a plurality of file driving arms, a reciprocatory cam actuated file guide driving bar, and spring adapted to actuate the file guide driving bar in the opposite direction, of the file guide piece pivoted to the frame and operatively connected to the file guide bar, substantially as specified.

2. In a gin saw sharpening machine, the combination with a plurality of carrying arms and files, of a spring connecting the file carrying arms and adapted to spread the files, and a pivoted file guide piece bearing against the file carrying arms in a direction at right angles to the tension of the spring, and mechanism for swinging the file guide piece upon its pivot, substantially as specified.

3. In a gin saw sharpening machine, the combination with a plurality of file carrying arms, and means for spreading their lower ends apart, a pivoted guide piece bearing against the file carrying arms in a direction at right angles to their spread saw feeding mechanism, and common actuating mechanism adapted to actuate the file carrying arms, pivoted guide piece, and saw feeding mechanism, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

JEROME D. CROMER.

Witnesses:

DANL. MCKENZIE,
THOS. W. NEAL.