

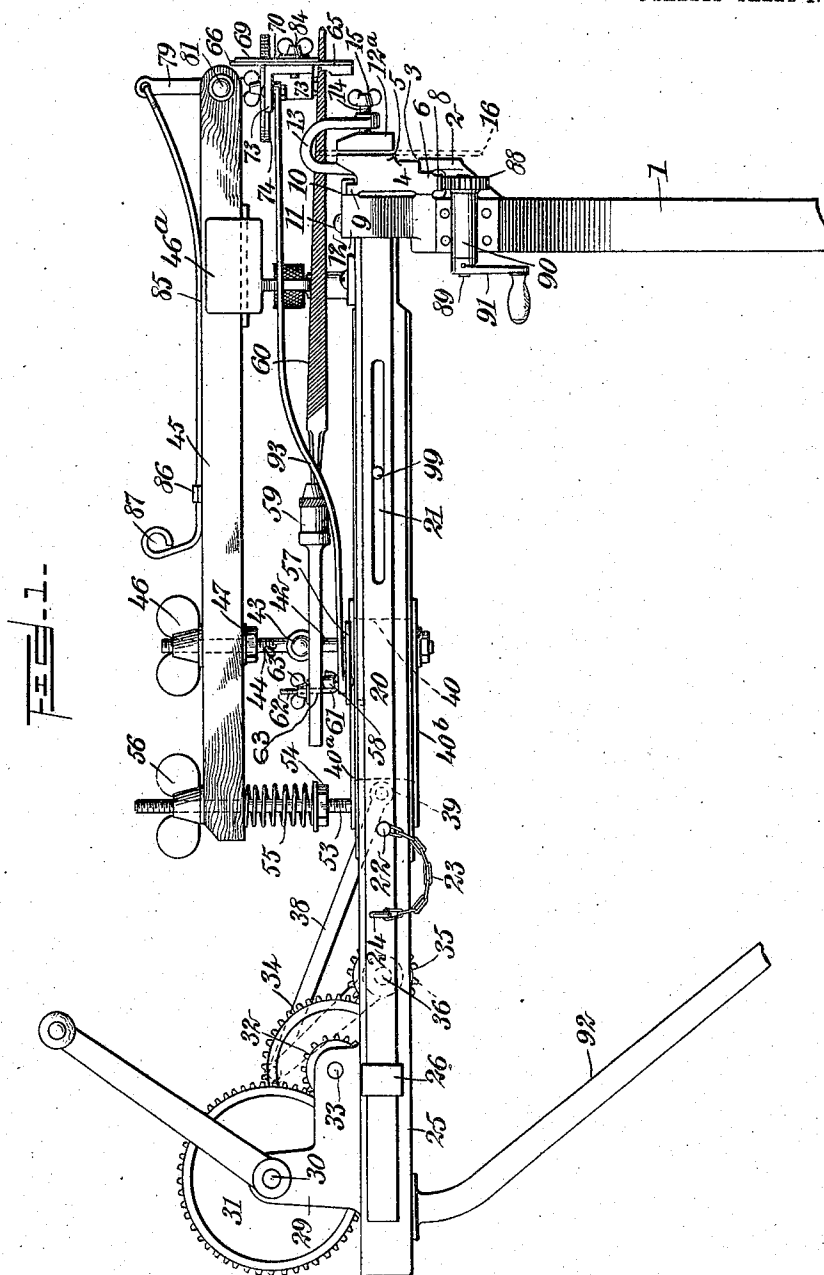
No. 847,804.

PATENTED MAR. 19, 1907.

J. D. McAULAY.
SAW SHARPENING MACHINE.

APPLICATION FILED OCT. 7, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

L. Sanford Hand
E. E. Ellis

INVENTOR

John D. McAulay

BY

Mumme

ATTORNEYS

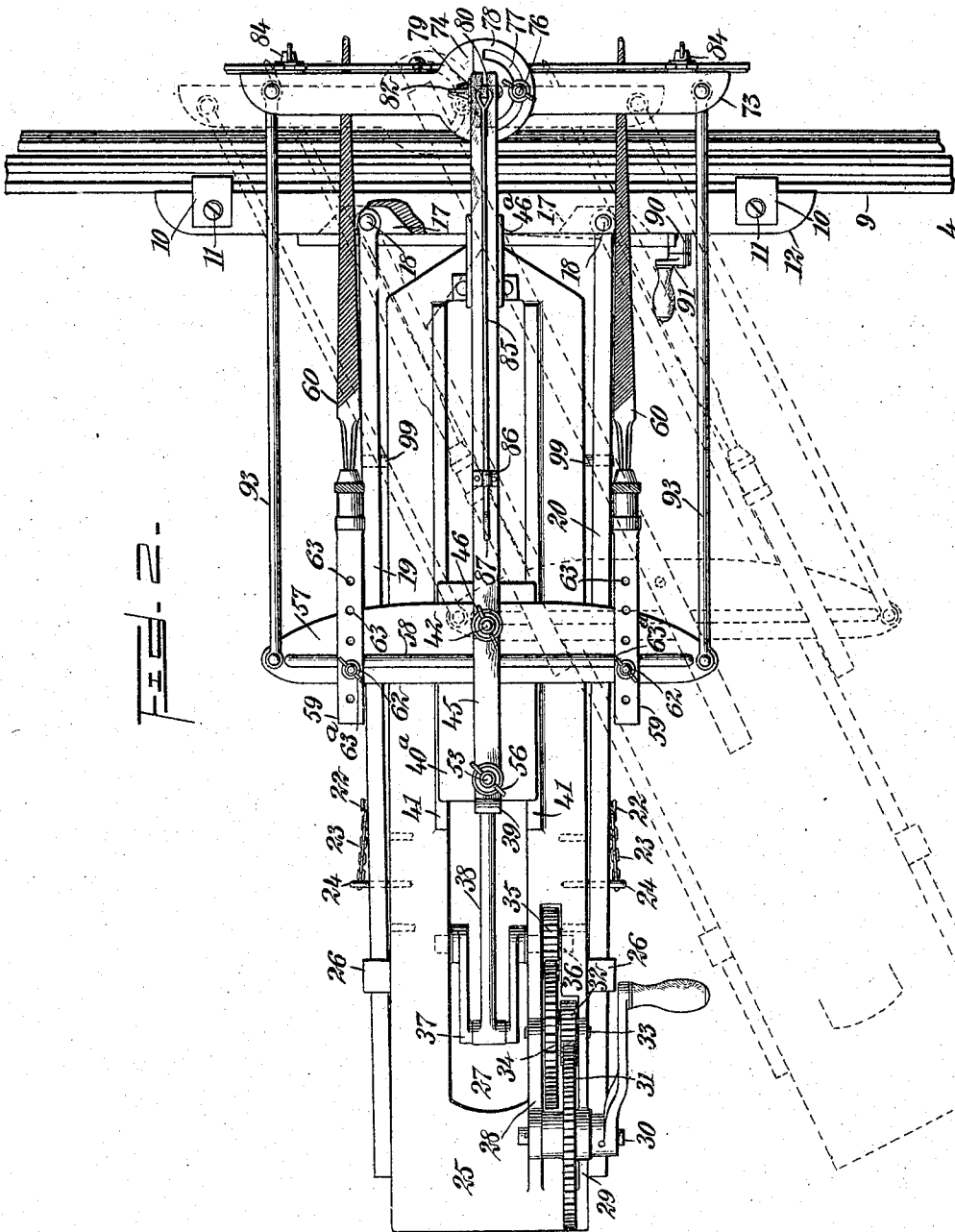
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L. Sanford Handley
E. E. Ellis

INVENTOR

John D. McAulay

BY

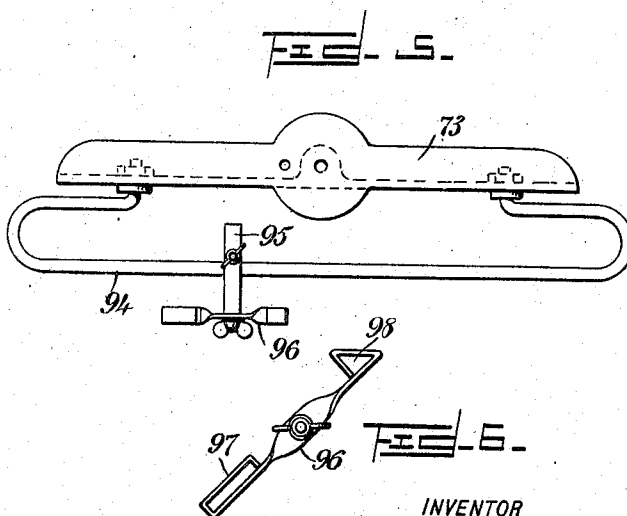
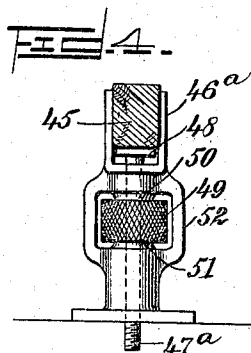
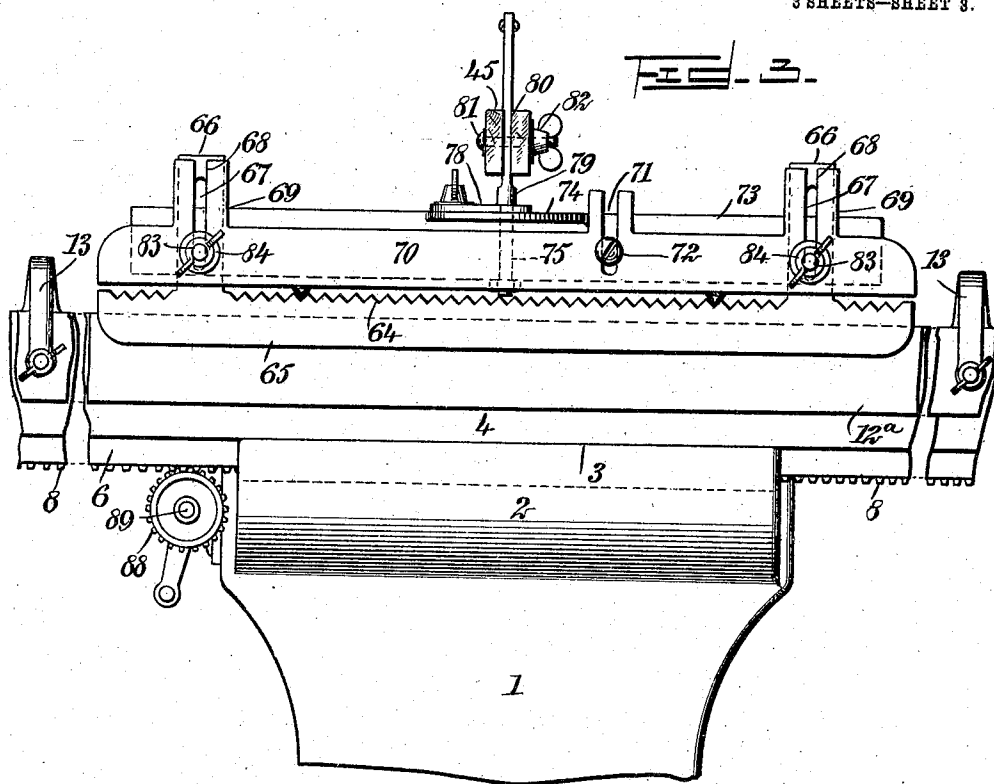
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L. Sanford Handy
E. C. Ellis

INVENTOR
John D. McAulay
BY *Munn*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN D. McAULAY, OF BADDECK, NOVA SCOTIA, CANADA.

SAW-SHARPENING MACHINE.

No. 847,804.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed October 7, 1905. Serial No. 281,757.

To all whom it may concern:

Be it known that I, JOHN D. McAULAY, a subject of the King of Great Britain, and a resident of Baddeck, in the Province of Nova Scotia and Dominion of Canada, have invented a new and Improved Saw-Sharp-
5 Machine, of which the following is a full, clear, and exact description.

This invention relates to saw-sharpening machines; and it consists, substantially, in the details of construction and combinations of parts hereinafter more particularly described, and pointed out in the claims.

The invention has reference more especially to saw-sharpening machines of the type embodying one or more hand-driven reciprocatory tools; and one of the principal objects of the invention is to provide such a structure of an embodiment to overcome
15 numerous disadvantages and objections encountered in the use of many other structures of the kind hitherto devised.

A further object is to provide a saw-sharpening machine which is simple in construction and comparatively inexpensive to manufacture, besides being adapted for the sharpening of the teeth of both handsaws and crosscut-saws, as well as rip-saws and circular
25 saws.

A still further object of the invention is to provide a saw-sharpening machine of the type specified which is thoroughly effective and reliable for its purposes and which possesses the capacity for long and repeated
35 service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which—

40 Figure 1 is a side view of a saw-sharpening machine embodying my improvements. Fig. 2 is a top plan view of the machine, the full lines indicating the position to which the sharpening devices proper are carried for the purpose of sharpening the teeth of either rip
45 or circular saws and the dotted lines indicating one of the positions to which said devices are carried for the purpose of sharpening the teeth of either hand or crosscut saws. Fig.
50 3 is an end elevation of the machine, indicating more clearly the carrier employed for the saws and the guide for the files for sharpening

the teeth of the saws. Fig. 4 is a part-sectional detail view of a device employed for regulating the depth of the cut of the files
55 used for sharpening the saws. Fig. 5 is a plan view in detail of a detachable support for one or more holders for flat files, and Fig. 6 is a detail view of a holder for flat files shown in the preceding view.

Before proceeding with a more detailed description it may be stated that in the form of my improvements herein shown I employ a suitable supporting-stand for the machine, the latter comprising special means for carrying the saw to be sharpened and special
65 actuating devices for moving the saw to bring the teeth thereof successively into proper position to be sharpened. Specially-constructed reciprocatory sharpening
70 devices proper are employed, together with a special guide therefor, in association with a specially-constructed horizontally-shiftable supporting-frame for said guide, the organization of the severally-mentioned elements being such that the sharpening devices proper
75 may be quickly shifted and set to different positions relatively to the supporting-stand of the machine for enabling the sharpening of the teeth of saws of the different kinds referred
80 to to be effected.

Reference being had to the drawings by the designating characters thereon, 1 represents the upper portion of a supporting-stand for my improved saw-sharpening machine,
85 which is provided at the upper portion thereof with an outer transversely-extending bracket 2, on the upper edge 3 of which is slidably supported the lower edge of the body member 4 of a carrier for a saw to be
90 sharpened, said member being of the desired length and other dimensions, as well as flat on the outer surface, of a forwardly-projecting portion 5 thereof, as indicated. The said lower edge 3 of the body member 4 of this
95 carrier is produced by recessing the member for its length, and which leaves the same with a pendent portion 6, the lower edge of which is provided with a series of teeth 8, thus practically making of this member of the carrier a rack-bar. Said member is provided at the upper inner edge thereof with a longitudinally-extending rib 9, (see Fig. 1,) which is engaged by suitable clips 10, secured, by
100

means of screws 11, to the upper surface of a strip 12 of suitable length and other dimensions, which is rigid with and constitutes practically a part of the hereinbefore-mentioned supporting-stand 1 of the structure. The construction of the saw-carrier referred to is completed or made up of a member 12^a, substantially of equal length to the body member 4 of the carrier and disposed before the said forwardly-projecting portion 5 of said body member by means of suitable outwardly and downwardly curved brackets 13, the inner ends of which are secured in any suitable manner to the upper part of the body member 4, and the outer or free ends of which are provided with screws 14, the inner ends of which are rotatably connected with the member 12^a, said screws being provided with thumb-nuts 15, by which the member 12^a may be adjusted with reference to the said forwardly-projecting portion 5 of the body member 4 of the carrier for the purpose of enabling a saw 16 (indicated in dotted lines in Fig. 1) to be properly placed within the carrier to be sharpened in a manner presently to be explained. The said strip 12 is formed in the inner or rearward face thereof with suitable sockets 17, disposed a suitable distance apart, and between the upper and lower walls of which are mounted suitable pins 18, on which are loosely held the forward ends of parallel rearwardly-extending members 19 and 20, constituting practically a horizontally-shifting supporting-frame for a slide for the sharpening devices proper, to be presently explained, said parallel members 19 and 20 being formed with corresponding longitudinal slots 21 (see Fig. 1) and provided at 22 with short chains 23, carrying pins 24 at the free ends thereof, the function of which will also be presently explained.

The inner or rearward ends of the parallel members 19 and 20 are free, and supported between said members is a slide 25, having secured to the opposite longer sides thereof suitable clips 26, through which the said parallel members extend, as shown in Figs. 1 and 2. The said slide 25 is cut out for the greater part of the length thereof to form a longitudinal slot 27 therein of proper width, and mounted upon the slide at the inner or rearward end thereof, at one side of the slot 27, are suitable bearing-plates 28 and 29 for the shaft 30 of a large gear-wheel 31, the teeth of which are in mesh with the teeth of a pinion 32, also supported by said bearing-plates 28 and 29, the spindle 33 thereof also carrying another gear-wheel 34, smaller than the aforesaid gear-wheel 31, and the teeth of which engage with another pinion 35, and the spindle 36 of this latter pinion being rigid with one arm of a crank 37, suitably mounted within the slot 27 at the sides thereof and with which is movably associated the inner

or rearward end of a pitman or connecting rod 38, the outer or forward end of which has movable connection at 39 with a reciprocatory block 40, having upper and lower plates 40^a and 40^b, the parallel longer edges of which have working support upon flat plates 41, disposed in suitable manner upon the upper surface of the slide 25 for a suitable extent of the said slot 27 therein. The upper surface of the said parallel members 19 and 20 and the said slide 25 are flush with each other, by which when reciprocatory motion is imparted to the said block 40 the movement of the latter will be true, thereby securing accuracy of results in the sharpening of saws, as will be fully understood from the description to follow. Extending through the block 40 and the said upper and lower plates 40^a and 40^b thereof, nearest the outer or forward end of said block, is a post 42, to which is pivoted at 43 the lower end of a screw-bolt 44, the threaded portion of which extends through a proper opening (not shown) therefor in a longitudinally-disposed beam 45, the said threaded portion of this screw-bolt, above the said beam 45, being provided with a thumb-nut 46, by which and the nut 47 on the bolt at the under side of the beam the latter may be adjusted vertically with respect to the slide 25, such adjustment being desirable under some conditions of use of the machine. The forward portion of the said beam 45 is held within a rest 46^a therefor, (see Fig. 4,) and working through the bottom of this rest is a screw 47^a, carrying at the upper end thereof, within the sides of the rest, a plate 48, upon which the said forward portion of the beam 45 is directly supported, it being noted that the screw 47^a is provided with a milled operating-nut 49, working between upper and lower bearings 50 and 51, surrounding the openings for the screw 47^a in a supporting-frame 52 for both the said screw and the said rest 46^a. By turning the screw in one direction or the other the forward end of the beam 45 will be raised or lowered accordingly, as will be understood, and according to the height to which the plate 48 is adjusted will be the depth of cut of the files for sharpening the saws, as will be understood from the description to follow. The rest 46^a also constitutes a guide for the beam 45 in the reciprocatory movements of the latter, and supported at the rear end (in suitable manner) of the upper plate 40^a of the reciprocatory block 40 is a screw 53, carrying a nut 54, on which is mounted the lower end of a spring 55, the upper end of which has bearing against the under side of the rearward or inner end portion of the beam 45, such end portion being provided with a suitable opening, through which the upper portion of the said screw 53 extends, this upper portion of the said screw

being provided with a thumb-nut 56 for adjusting the inner or rearward end of the beam 45 vertically, and thereby correspondingly adjusting the forward end thereof, such adjustments being capable of being effected by reason of the described pivotal relation between the post 42 and the said screw-bolt 44.

Disposed transversely of the upper surface of the parallel members 19 and 20 and the slide 25 is a plate 57, provided for its length with a bar 58, to which is secured one or more holders 59 for three-cornered files 60, extending forwardly of the machine, the said holders each being provided with a hook 61, engaging the under side of the bar, (see Fig. 1,) with the threaded stem 62 of the hook adapted to be extended through any one of a plurality of openings 63 in the holders and provided with thumb-nuts 63^a for tightening the holders upon the bar 58, it being apparent that from this embodiment said holders may be adjusted so as to cause the forward ends of the files 60 to extend more or less beyond the forward end of the machine. The forward end portions of the three-cornered files 60 are adapted to be received in any selected ones of notches 64, formed in the upper edge of the guide-plate 65 for said files, this guide-plate being provided with hangers 66, having slots at 67 therein in registry with slots 68, formed in other hangers 69, extending from the upper edge of a retaining-plate 70 for the files, by which is meant a plate to prevent the files from slipping out of the notches while being operated to sharpen the teeth of a saw, the said retaining-plate 70 being also preferably (though not essentially) provided with a slot 71, through which extends a screw 72, entering a member 73, the upper surface of the central portion of which is provided with a disk 74, secured in place by a screw 75, entering the said member 73 from the lower edge thereof, (see dotted lines, Fig. 3,) the said disk having rigid therewith a screw-pin 76, which projects upwardly through a segmental slot 77, formed in a half-disk 78, which is rigid with the lower end of a pin 79, which extends upwardly between the sides of a kerf 80, formed in the said beam 45, for a suitable distance from the forward end thereof and secured in place by means of a screw-pin 81, extending through the end of the beam at the sides (see Fig. 3) and provided at the free end of the projecting threaded portion thereof with a tightening thumb-nut 82. The said member 73 is of the proper dimensions, and the same has projecting from the outer face thereof near the ends suitable screws 83, each of which extends through one of the sets of slots 67 and 68 and is provided with a thumb-nut 84, by which the retaining-plate 70 may be adjusted to any desired extent with reference to the notches 64 in the guide-plate 65, in conformity with files of different

sizes which may be employed in the use of the machine. The upper end of the pin 79 has been connected thereto the forward end of a spring-rod 85, the rearward end portion of which is adjustably held in place by a plate 86 on the upper side of the beam 45 and is turned upwardly into a handpiece 87, this spring-rod operating in a sense as a cushioning or tensioning device for the files 60 as they are reciprocated through the guides therefor.

The hereinbefore-mentioned member 4 of the saw-carrier may be moved to any desired extent transversely of the machine by means of a gear-pinion 88, carried at the outer end of a shaft 89, supported in a bearing 90, secured to the side of the supporting-stand 1 and provided at its inner end with an operating-crank 91, the teeth of said pinion being in engagement with the teeth 8 of the said member, it being only necessary to impart motion to the pinion by the crank in an obvious manner.

The inner or rear end of the slide 25 is provided on the under side thereof with a brace 92, which may have pivotal connection with the stand 1.

The adjacent sides of the slide 25 and the parallel members 19 and 20 are provided with a plurality of corresponding holes which when brought into registry may receive the pin 24 at the end of the chain 23, and thereby secure the said members and slide together, either in the position shown in full lines in Fig. 1 or the position shown in dotted lines in said figure, whenever the files 60 are to be carried to a position to file the teeth of a hand or crosscut saw from one side or the other thereof. To enable the sharpening devices to be shifted to the said positions, the plate 57 and member 73 have pivotally connected to the ends thereof the ends of parallel rods 93, operable in connection with said plate and member, as will presently be explained.

As shown in Fig. 5, the hereinbefore-mentioned adjustable guide and retaining devices for the files may sometimes be substituted by a frame 94, suitably secured in the outer or forward face of the member 73 and carrying thereon one or more adjustable brackets 95, carrying at the outer end thereof a rotatably-adjustable holder 96 for a flat file (not shown) which may sometimes be employed for certain purposes on certain kinds of saws, the said holder being provided with a yoke 97, directly receiving the file, as well also as a triangular yoke 98, in which a three-cornered file may also be supported in certain instances of use of this particular embodiment of devices referred to.

From the foregoing it will be seen that when the parallel members 19 and 20 and guide 25 have been carried to the positions indicated in full lines in Fig. 2 and the plate 57 and member 73 brought substantially

parallel with each other the filing of a rip-saw, for instance, may be expeditiously effected by simply causing the block 40 to be reciprocated through the proper hand-operated devices therefor, it being understood that the pins 24 have been first inserted in the alining openings therefor in order to maintain the said parallel members 19 and 20 and block 25 in practically rigid relation with each other. Now for the purpose of effecting the sharpening of the teeth of either a hand or a cross-cut saw from one side or the other, it is necessary to shift the sharpening devices proper—say to the position shown in dotted lines in Fig. 2—and this is carried out by first removing the pins 24 and then swinging the parallel members in the proper direction horizontally, whereupon the slide 25 will move outwardly a short distance in conformity with the movement imparted to the said members, and then the pins 24 are again inserted in different alining openings therefor in the parallel members and slide, thus to hold the operative elements of the structure in the position suggested.

It should be mentioned that the slide 25 is guided in its movements by means of pins 99 working in the said mentioned longitudinal slots 21 in the parallel members 19 and 20, while it is understood that the clips 26 on the slide permit of the necessary movements taking place between the slide and the parallel members 19 and 20. The desired adjustments of the movably-connected plate 57 and member 73 are usually effected by hand after swinging the parallel members and slide horizontally and before inserting the fastening-pins 24, it being evident that if the said pins 24 are inserted in the alining openings therefor the plate 57 and the member 73 will be held in desired parallel relationship to each other.

As further explaining the operation of the machine, it may be stated that by proper adjustment of the thumb-nut 56 the tension of the spring 55 may be regulated to cause the files to be held to their work at any desired pressure, as will be apparent.

It will be noticed from an inspection of Fig. 2 that the parallel members 19 20 are spaced apart from the slide 25 at their front ends in order to permit the swinging movement shown in dotted lines of the parallel members and the slide.

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

1. A saw-sharpening machine comprising a supporting-stand, horizontal parallel members pivoted thereto, a slide located between said members, a block mounted for reciprocation upon the slide, and sharpening devices actuated by said block.

2. A saw-sharpening machine comprising

a supporting-stand, a block mounted for reciprocation upon the stand, sharpening devices actuated by said block, said sharpening devices embodying a plate pivoted centrally upon said block and having adjustable file-holders connected therewith.

3. A saw-sharpening machine, comprising a supporting-stand, horizontally-shiftable parallel members pivoted thereto, said members having parallel slots therein, a slide located between the members, having pins working in said slots, a block mounted for reciprocation upon the slide, and sharpening devices actuated by said block.

4. A saw-sharpening machine, comprising a supporting-stand, horizontally-shiftable parallel members pivoted thereto, said members having parallel slots therein, a slide located between the members, having pins working in said slots, a block mounted for reciprocation upon the slide, and sharpening devices actuated by said block, the latter being provided with top and bottom plates moving along the upper and lower surface portions of the slide.

5. A saw-sharpening machine, comprising a supporting-stand, horizontal parallel members pivoted thereto, a slide located between said members, a block mounted for reciprocation upon the slide, and sharpening devices actuated by said block, said slide being provided at opposite sides thereof with clips, in which said members are movably guided.

6. A saw-sharpening machine comprising a supporting-stand, sharpening devices in connection with the stand, comprising a rotatable plate, one or more files supported thereby, a guide-plate, a retaining member for the files, a support for the two latter elements, and rods movably connecting said support with said plate.

7. A saw-sharpening machine, comprising a supporting-stand, horizontal parallel members pivoted thereto, a slide located between said members, a reciprocable block supported by the slide, sharpening devices actuated by said block, said parallel members and the slide being provided with openings adapted to being brought into registry with each other, and pins held by the members for insertion within the registering openings, for securing the members and slide together in the different positions to which the same may be shifted.

8. In a saw-sharpening machine, a reciprocable bar, a plurality of file-holders, hooks engaging the bar and having screw-threaded ends traversing openings in the file-holders, and nuts engaging the screw-threaded ends for securing the file-holders to the bar.

9. A saw-sharpening machine comprising a supporting-stand, a block mounted for reciprocating movement on the stand, files connected with the block, a longitudinally-ex-

tending beam pivotally mounted upon the block, a half-disk having a segmental slot and connected with the end of the beam, a member having on the upper surface thereof a
5 disk provided with a pin working in the segmental slot, and a supporting-plate for the files connected with said member.

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

JOHN D. McAULAY.

Witnesses:

ANGUS FERGUSON,
DONALD J. McRAE.