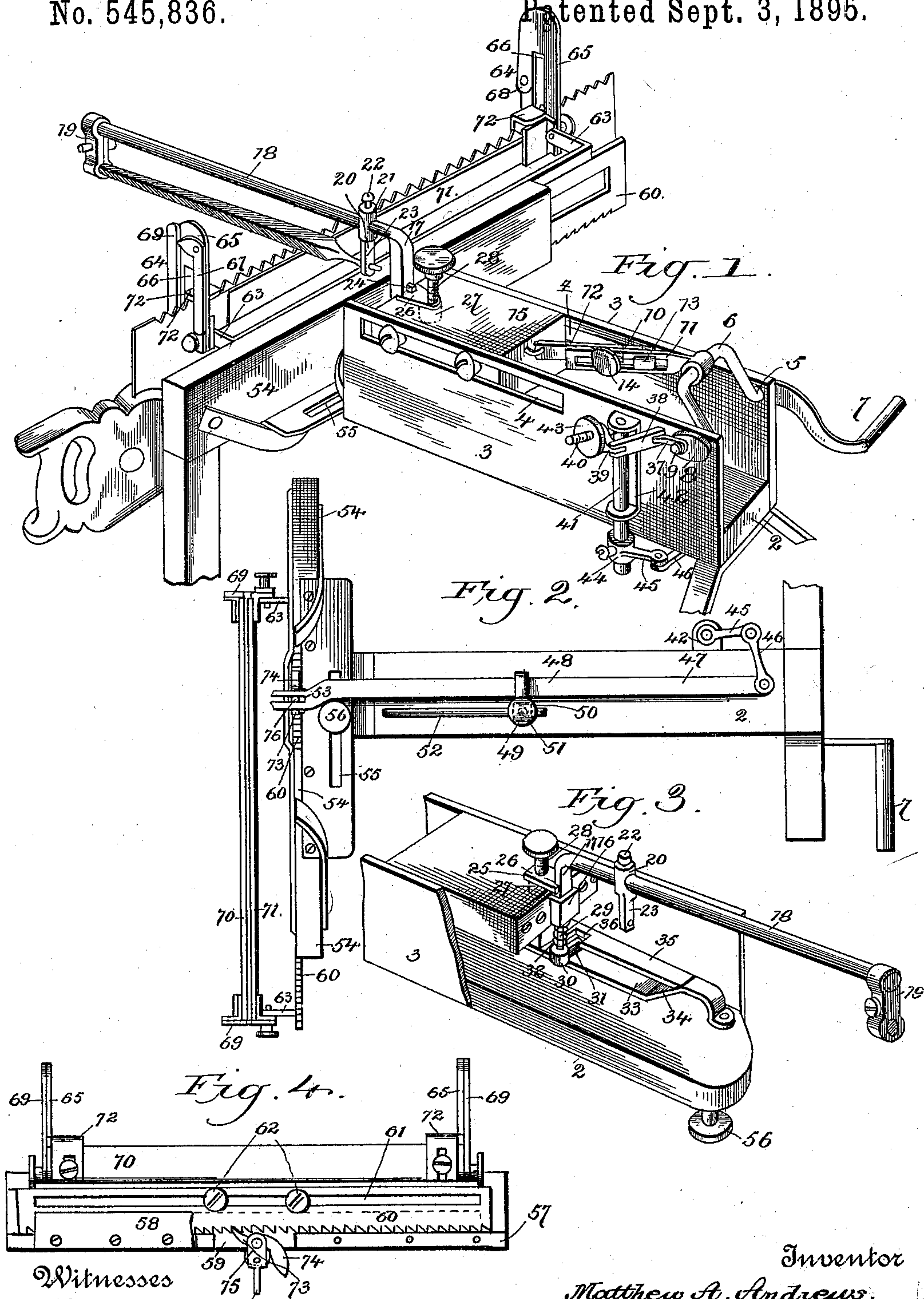


(No Model.)

M. A. ANDREWS.
SAW SHARPENING MACHINE.

No. 545,836.

Patented Sept. 3, 1895.



Witnesses

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SAW-SHARPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 545,836, dated September 3, 1895.

Application filed February 28, 1894. Serial No. 501,829. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW A. ANDREWS, a citizen of the United States, residing at Northborough, in the county of Page and State of Iowa, have invented certain new and useful Improvements in Saw-Sharpener Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to saw-sharpening machines employing a reciprocating file, and has for its object to simplify such class of devices and render the same more effective in operation, as well as to increase the strength and durability thereof.

With this and other objects in view the invention consists of the construction and arrangement of parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a saw-sharpening machine embodying the invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a detail perspective view of a portion of the device. Fig. 4 is a front elevation of a portion of the saw-clamp and the feed mechanism.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

Referring to the drawings, the numeral 1 indicates the main frame, which is composed of a longitudinally-disposed bar 2, which forms a bed and has opposite side plates 3 rising therefrom, which have elongated slots in the upper front portion thereof, as at 4. In the rear portion of the upper part of the plates is mounted a crank-shaft 5, having an elongated central crank 6 and provided at one end with an operating-handle 7, and at the opposite end is an eccentric 8, carrying a wrist-pin 9. To the crank 6 is secured a drive-bar 10, which is made in two parts, as at 11 and 12, the part 11 being slotted and engaged by a headed or flanged projection 13, extending from the opposite part 12, and also by a set-screw 14, whereby the said drive-bar may be longitudinally adjusted to regulate the stroke. The part 12 of the drive-rod is movably con-

nected to the rear portion of a slide-block 15, having headed pins engaging the slots 4 of the plates 3. To the outer front portion of the slide-block 15 is secured a vertically-disposed guide 16, in which is mounted the vertically-disposed end 17 of a rod or bar 18, having at its outer end an adjustable clamp 19, and also provided with an adjustable sliding support 20, consisting of an upper apertured head 21, engaged by a set-screw 22, and a lower depending arm 23, having an opening extending therethrough. Between the outer clamp 19 and the inner support 20 the file is adapted to be held, as fully shown in Fig. 1. The vertical portion of the rod or bar which is mounted in the guide has a lug 24 on the back portion thereof, and under the said lug is a lifting-plate 26, having a screw-socket 27 extending downwardly into the slide-block and engaged by an adjusting-screw 28, by means of which the said bar or rod may be elevated or depressed to bring the file carried by said bar or rod in proper engagement with the teeth of the saw. The lower end of the vertical portion of the rod or bar is reduced and formed cylindrical, as at 29, and has at the lower end thereof a head 30, from which extends in a lateral direction a pin on which is mounted an antifrictional roller 31. Above the head 30 and surrounding the lower reduced portion of the vertical part of the rod or bar is a spring 32, bearing against the head 30 and the under adjacent part of the guide 16. The antifrictional roller 31 normally bears upon a lower rail 33 of a duplex track, the said rail 33 having a forward incline 34, and therefrom extends a spring-rail 35, free at its forward end and secured at its rear end, the said spring-rail being also provided with a slot 36 near the rear end thereof. When the slide-block carrying the rod or bar supports and file is reciprocated through the shaft and drive-bar, the pin bearing the antifrictional roller 31 first travels forward on the rail 33, upward over the incline 34, raises the spring-rail 35, and then moves backward over the said spring-rail 35 until it reaches the slot 36, when it again drops through to the rail 33. This produces an alternate rising and falling move-

ment of the rod or bar simultaneously with the reciprocation of the latter, and the spring 32 tends to force the pin carrying the antifrictional roller 31 downwardly when it reaches the slot 36.

It will be observed that by this construction and arrangement the movement of a file in the hands of an operator is simulated and the action becomes continuous and more regular in view of the mechanical nicety of the several parts.

Movably attached to the wrist-pin of the eccentric on the crank-shaft is a link 37, having attached thereto a connecting-bar 38, and to the front end of the connecting-bar is attached another link 39, which is mounted over a rod or pin 40, extending outwardly in a horizontal direction from the upper portion of a vertical shaft 41, mounted in a supporting-plate 42 and having a rocking motion. The said rod or pin 40 is screw-threaded and engaged by a thumb-nut 43, by means of which the link 39 is held in proper position and may be moved when desired. It will be seen that the connecting-bar 38 is movably attached to the links 37 and 39, and on the lower end of the shaft 41 is removably mounted a sleeve or collar 44, having an arm 45 projecting therefrom, which is attached to the outer end of a lower link 46, whose inner end is secured to the rear portion of a horizontally-disposed oscillating bar 47, extending through the slotted arm 48 of an adjustable fulcrum 49, which comprises an apertured head 50, engaged by a set-screw 51, said arm extending from the said head and the latter being secured adjustably on the rod 52. The outer free end of a bar 47 is deflected to one side and bifurcated, as at 53, and extends beyond the front end of the bed. Across the front end of said bed is a vertically-disposed bar 54, having a slotted plate 55 attached to the under edge thereof, which projects rearwardly and is removably and adjustably engaged by a screw-bolt 56, extending downwardly from the front end of the bed. The bar 54 is formed with a lower holder 57 on the outer side thereof, and projecting upwardly over the said holder is a plate 58. In the central part of the said holder an opening or slot 59 is formed, and on the said holder is movably mounted a ratchet-plate 60, having an upper elongated slot 61, engaged by set-screws 62 to hold the same in proper position, but permitting it to have free movement.

Integrally formed with the upper part of the ratchet-plate and extending outwardly therefrom at a right angle are opposite arms 63, to which are connected the oppositely-disposed saw-clamps 64, each of which is composed of rear vertical plates 65, which are slotted, as at 66, and have attached thereto clamping-levers 67. The plates 65 have front depending members 68, and to the outer sides of the same are attached vertical bars 69. In the lower ends of the bars 69 are secured

the opposite ends of the outer clamping-bar 70, while to the inner members of the plates 65 are secured the opposite ends of the inner clamping-plates 71. Between these clamping plates the saw is held, as shown at Fig. 1, and adjustably secured to the outer clamping-plate are angular holders 72, which hold the saw downward in position. In placing the saw in the clamp it is set through the slot 66 of the plate 65 and the levers 67 are operated to throw the plates 70 and 71 closely against the opposite sides of the saw. The ratchet-plate 60 is engaged by a pawl 73, having a lower weighted depending end 74, and to which is pivotally attached an operating arm 75, having a lower reduced end 76, which is fitted in the outer bifurcated end of the oscillating bar 47. The said oscillating arm 75 is itself pivoted to a depending lug or ear and through the medium of the link 46 and the shaft 41, together with the connections between the said shaft and the crank-shaft, the saw is simultaneously fed relatively to the movement of the file, thereby successively sharpening the several teeth.

In operation the bar 47 oscillates and a similar movement is imparted thereby to the arm 75, which alternately releases the pawl 73 and causes an engagement thereof with the successive teeth of the ratchet-plate 60. When it is desired to return the saw to its original adjusted position or in order to bring the outermost tooth under the file, the weighted portion 74 of the pawl is engaged by the fingers and released from the ratchet-plate and thereby permits the saw-clamping plates and attachments to be moved to the left on the bar 54 with the device, as shown in Fig. 1.

The device as a whole is simple and effective in its operation, and it is obviously apparent that many minor changes in the construction and arrangement of the several parts might be made and substituted for those shown and described without in the least departing from the spirit and nature of the invention.

Having thus described the invention, what is claimed as new is—

1. In a saw sharpening device, the combination with a main frame, having a suitable base and side pieces, said side pieces being provided with elongated slots therein, a block mounted to reciprocate between said side pieces, and having pins moving in said slots, a file holder mounted in the forward part of said block, the same consisting of a bar having a vertical portion extending downwardly through a guide piece on the front face of said block, a lateral arm having an antifriction roller extending transversely from the lower end of said bar, a duplex rail mounted on the base of said frame, the lower rail having an inclined surface at its end and the upper rail secured to its rear end, and having a notch at an intermediate point and means for reciprocating said sliding block, whereby the file

carrier is moved backward and forward and upward and downward at each end of a stroke, substantially as and for the purpose described.

2. In a saw sharpening device, the combination with a main frame consisting of a base and two side pieces, having elongated slots therein, a block mounted to reciprocate between said side pieces, a file holder connected to said reciprocating block, means for giving said file holder an upward and downward movement at each end of a stroke, a crank shaft mounted in said side pieces and connected to the rear end of said reciprocating block, a saw clamping frame connected to said main frame, a rack bar to which said saw clamping frame is attached, a pawl adapted to engage said rack bar for imparting a step by step movement to said frame, intermedi-

ate mechanism between said pawl and said crank shaft, a vertically disposed rock shaft mounted on one of said side pieces actuated by means of an eccentric on the outer end of said crank shaft, the said rock shaft having a rearwardly extending bar connected by means of a link to a lever pivoted on the under side of said main frame, said lever having bifurcated ends which surround a projection on the end of said pawl, substantially as and for the purpose described.

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

MATTHEW A. ANDREWS.

Witnesses:

W. H. BULLOCK,
W. R. ANDREWS.