No. 699,206. Patented May 6, 1902.

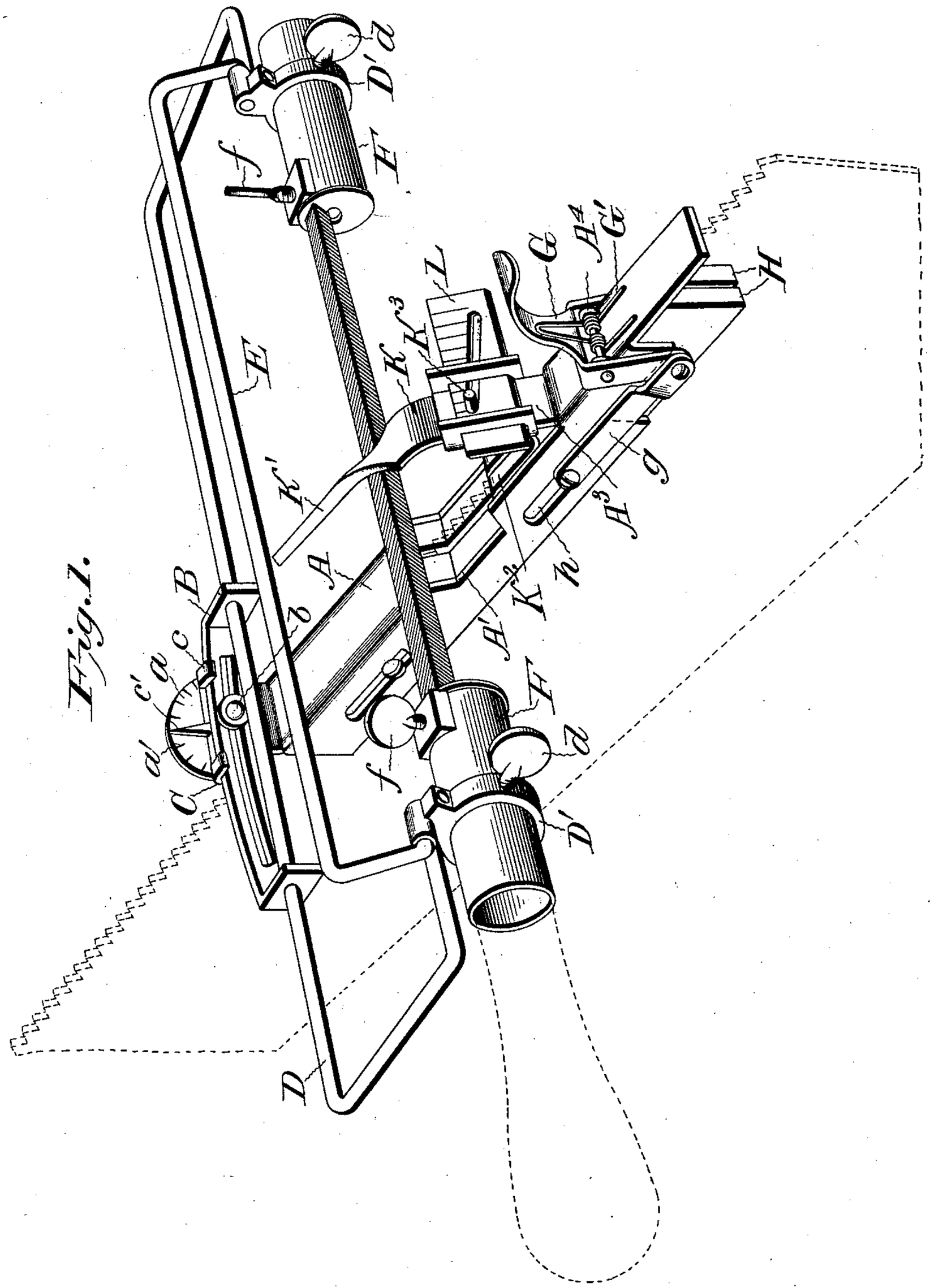
# L. M. MILLER.

## SAW FILING DEVICE.

(Application filed Jan. 13, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.




WITNESSES:

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His Attorney,

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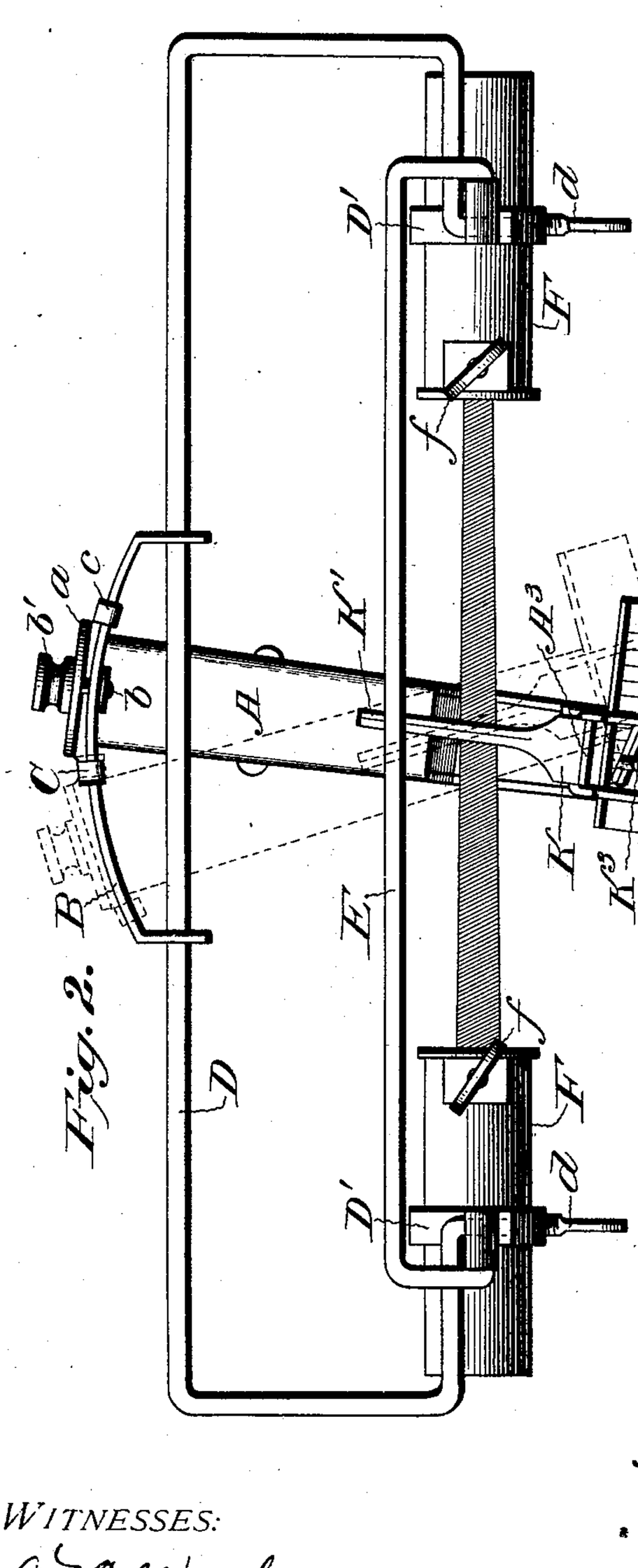


Fig. 2.

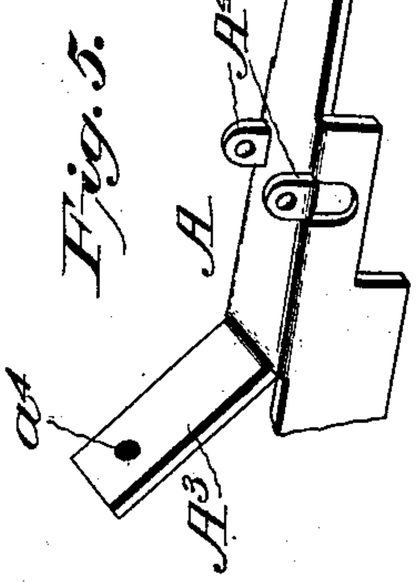


Fig. 5.

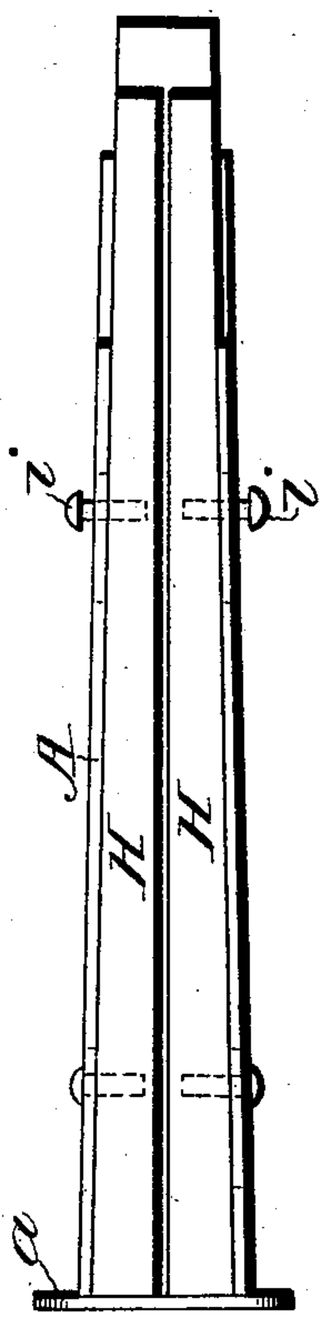


Fig. 3.

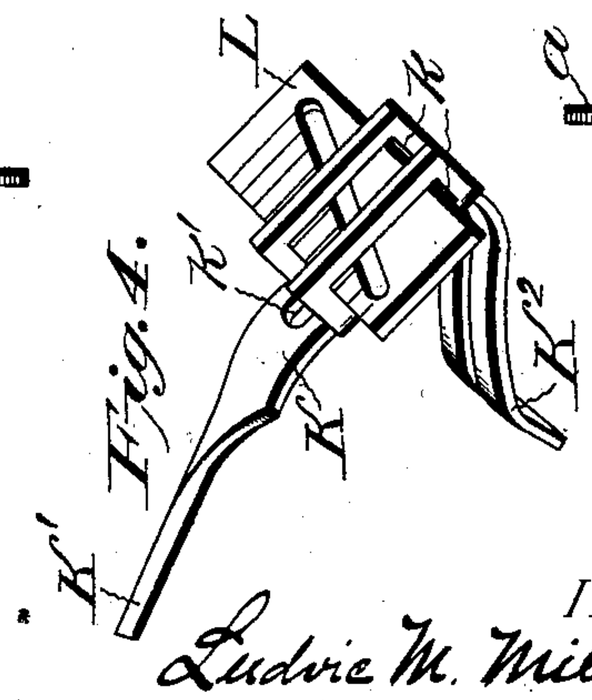


Fig. 4.

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# UNITED STATES PATENT OFFICE.

LUDVIC M. MILLER, OF WINNECONNE, WISCONSIN, ASSIGNOR OF ONE-HALF TO GEORGE MARIN, OF WINNECONNE, WISCONSIN.

## SAW-FILING DEVICE.

SPECIFICATION forming part of Letters Patent No. 699,206, dated May 6, 1902.

Application filed January 13, 1902. Serial No. 89,534. (No model.)

*To all whom it may concern:*

Be it known that I, LUDVIC M. MILLER, a citizen of the United States, residing at Winneconne, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Saw-Filing Devices, of which the following is a specification.

This invention relates to saw filing or sharping devices, the object being to provide a saw-filing device which is carried by the saw-blade and is movable thereon, each movement over the blade skipping one tooth, so as to operate upon alternate teeth, the frame being provided with a file-holder and gages, which gages are adjustable, so that when set the saw may be filed as desired with any pitch or angle, the teeth being of a uniform depth.

The invention consists more particularly in the construction and combination of the parts, as will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, which illustrate one embodiment of my invention, Figure 1 is a perspective view of a saw-filing device made in accord with my improvement. Fig. 2 is a plan view, the parts being shown in full lines in one position and the file-carrying frame in dotted lines in another position. Fig. 3 is an inverted plan view of a part of the frame. Fig. 4 is a detail perspective view of a gage used for limiting the downward movement of the file. Fig. 5 is a detail perspective view of one end of the frame.

On the drawings, A refers to a frame which is tapered longitudinally when viewed from the top or bottom, and this frame on its upper side is cut away to provide a recess or depressed portion A′, into which the file will enter in use. The wider end of the frame A is shaped to provide a disk *a*, which is integral with the frame and extends at right angles with the top, said disk being provided with gage-marks *a′* and a central aperture, through which is passed the stem of a set-screw *b*, which engages with the nut *b′*, said screw and nut holding in place a frame B. The set-screw *b* engages a plate C, which is shaped so as to provide lugs *c*, which overlie the upper and lower edges of the curved frame B, and this part C has a pointer *c′*, which is movable over the gage-marks of the disk.

The curved frame B has a central longitudinal slot through which the pin or bolt *b* is passed, and the ends of this frame B are bent and provided with apertures, through which is passed a yoke D, the ends thereof being made fast to rings D′, said rings having enlarged portions with apertures to receive the ends of the yoke and sockets at right angles thereto, which receive the bent ends of a bail E. The yoke and bail may be rigidly attached to the rings or may be provided with set-screws for holding them rigid thereon after they have been properly positioned or adjusted.

F refers to cylinders, which are of such size externally as to fit snugly within the rings D′, to which they may be rigidly connected by set-screws *d*, carried by the rings. The cylinders are also provided with set-screws *f* and eccentrically with triangular openings through the heads of the cylinders, these openings commencing at the center of the heads and extending toward the periphery thereof, and by such construction the corner of a triangular file may be held by the heads or cylinders, so that said file and heads may be turned to bring different corners of the file in position for use; also, to provide means whereby a greater range of adjustment is provided for. By providing openings for the file which are to one side of the center or axis of the cylindrical heads F F the heads when turned will place the file carried thereby so each corner when downward will be in different relative position from that of the other corners with respect to the teeth of the saw. In other words, three ranges of combined vertical and lateral adjustment for the corners of the file are provided to meet the requirements as to adjustments in filing different saws, as the teeth of different saws are differently spaced. This adjustment is also used when the flat faces of the file are downward or at a slight angle, as in leveling the teeth. The set-screws *f* clamp the file in place, and the set-screws *d* hold the heads F against rotation and permit them to be adjusted longitudinally to suit files of different lengths.

In practice a tool-handle may be inserted in one or both of the heads, though the device may be readily reciprocated by grasping the end of the yoke.

The narrower end of the frame A carries

beyond the recess A′ an upwardly-inclined portion $A^3$, and toward the end the sides are shaped to provide upwardly-projecting ears $A^4$ with perforations through which passes the fulcrum of a thumb-lever G, said lever having a thumb-piece and depending side members, to which are pivoted links *g g*. The thumb-piece G is held normally upward by a spring G′, and the frame A has an extended portion, said frame being cut away at its sides, as shown in Fig. 3, and is also provided with slots *h*, through which pass screws *i i*, said screws engaging tapered or wedge-shaped blocks H H, which are held within the frame and are reciprocated when the thumb-lever is depressed.

The inclined portion $A^3$ of the frame A carries a gage K, having slotted sides *k*, a bar K′, which lies beneath the bail, and a pawl $K^2$, which is adapted to engage with the teeth of the saw. The part K is held upon the inclined portion $A^3$ of the frame A by a set-screw which passes through the slot *k′* therein and engages the threaded aperture $a^4$, the end of the set-screw passing through an inclined slot in the gage-plate L, so that when such gage-plate is moved laterally it will adjust the part K, raising or lowering the same with respect to the frame to limit the downward movement of the reciprocating file-holder, said file-holder and pawl occupying a relative position to the teeth of the saw as to the depth of said teeth. The lower portion of the gage K is bent, as shown, to provide a pawl $K^2$, and though it is integral with the bar K′ it is of such thickness and temper that it will give or spring to allow the frame to be slid over the saw-blade and carry the file-carrying frame with it when the lever or thumb-piece G is depressed to loosen the wedges. The set-screw $K^3$ is provided with smooth portions which pass through the slot *k′* and are positioned opposite the sides of the same, the threads engaging the threaded aperture $a^4$, while the end which is without threads passes through the diagonal slot of the gage-plate. The bail E by engagement with the bar K′, which is integral with the pawl $K^2$, will limit the movement of the file toward the saw-teeth, the adjustment of one part making a corresponding adjustment of the other part.

In use the blade of the saw is passed between the wedges H H, and the file-carrying frame is adjusted to position the file at the proper angle or angles, which is accomplished by adjusting the frame B both longitudinally and pivotally upon the set-screw, and after the adjustments are made the set-screw is tightened. By turning the cylindrical file-holders such adjustments of the file as are desired may be made. The gage to regulate the depth of the tooth or teeth is then set, and after one tooth has been filed the thumb piece or lever is depressed, which will move the wedges out of engagement with the saw, so that the frame may be moved manually over the teeth thereof, the frame being held against movement in one direction by the spring-pawl $K^2$, which engages the teeth of the saw so the frame can be slid in one direction only upon the saw, such movement skipping one tooth, and this is continued until every other tooth of the saw-blade has been filed, and when that is accomplished the file-holding frame is adjusted to the same angle and pitch on the opposite side of the frame, and the unsharpened teeth are then filed.

This device is comparatively simple in construction and a saw can be quickly sharpened by the use thereof, even in the hands of an inexperienced person. By turning the cylinders or file-holders F the file can be placed so that one of its flat faces will be above the teeth when it is desired to file the teeth to bring them on the same plane.

I am aware that it is not new to provide a saw-filing device with a reciprocating file-carrying frame, said frame having means for limiting or guiding the movements of the file, and I therefore do not claim such a device broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In a saw-filing device, a frame having depending sides which converge longitudinally, a reciprocating file-holding frame connected thereto, longitudinally-movable wedges between the depending sides of the frame, and means for moving said wedges, substantially as shown.

2. In a saw-filing device, a frame having depending and converging sides, a movable file-carrying frame mounted thereon, a pawl connected to the first-mentioned frame for engagement with the teeth of a saw, wedges reciprocally attached to the depending sides of the frame, and means for moving the wedges with respect to the frame.

3. In a saw-filing device, a frame, means for connecting thereto a file-holder, a pawl carried by the frame to engage the saw-teeth when the frame is mounted on a saw, wedges carried by the frame, and a thumb-lever mounted on the frame and connected to the wedges, substantially as shown.

4. In a saw-filing device, a frame in which the top and sides are partially cut away to provide a recess, a pawl carried by the frame to depend below the top, a file-carrier reciprocally attached to the frame, wedges maintained between the sides of the frame, a lever fulcrumed on the frame, and means for connecting the lower members of the lever to the wedges, substantially as shown.

5. A frame for a saw-filing device made up to present longitudinally-converging sides and top, an end portion which projects upward at right angles to the top, an inclined portion designed to support a gage, lugs which extend above the top, the frame being cut away centrally and provided with slots through the sides, in combination with a file-holder attached to the projecting portion at

one end of the frame, a gage carried by the intermediate inclined portion, a lever fulcrumed on the lugs, and bars connected to the lever and to wedges positioned between the converging sides, substantially as shown.

6. In a saw-filing device, the combination with a file-holder, of cylindrical heads adjustable longitudinally and rotatively attached to the file-holder, each head having to one side of its center openings to receive the file, and means for clamping the file in such openings.

7. The combination with the frame of a saw-filing device said frame having wedges which are longitudinally adjustable in the frame to clamp against the saw and hold the frame over the teeth thereof, a pawl adapted to engage the saw-teeth, a gage movable in conjunction with the pawl to limit the movement of the file toward the teeth of the saw, a reciprocatory file-holding frame mounted on the saw-engaging frame, file-holding heads which are rotatively mounted in rings which form a part of the file-holding frame, and a bar for engagement with the hereinbefore-mentioned gage, substantially as shown.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LUDVIC M. MILLER.

Witnesses:
LIZZIE REGEL,
M. S. MILLER.