



# UNITED STATES PATENT OFFICE.

JAMES McSWEENEY, OF PITTSFIELD, MASSACHUSETTS.

## IMPROVEMENT IN SAW-FILING MACHINES.

Specification forming part of Letters Patent No. **163,326**, dated May 18, 1875; application filed April 5, 1875.

*To all whom it may concern :*

Be it known that I, JAMES McSWEENEY, of Pittsfield, county of Berkshire and State Massachusetts, have invented certain new and useful Improvements in Machines for Filing and Gunning Saws, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a perspective view of the machine; and Fig. 2 is a similar view from the reverse or opposite side.

Similar letters of reference denote corresponding parts in both figures.

The invention relates to a novel arrangement, in combination with a saw-clamp, of devices for adjusting the file or grinding-wheel for giving the saw-teeth the required pitch and bevel, and for regulating with precision the adjustment of the file to the length or distance apart of the teeth of the saw operated upon, as hereinafter described.

In the drawings, A A' represent the two bars forming the clamp, the bar A being shown connected with angle-irons *b*, which are bolted or otherwise secured rigidly to a bench or table, B, and the two bars adapted to be secured together with the saw clamped between them, by means of clamping-screws passing through their ends at *a a*; but ordinarily the clamps or bars A A' will be placed in a vise, clamping the saw between them, and the irons *b* may be dispensed with. The bars A A' are provided at their upper edges with outwardly-projecting horizontal flanges C, forming ways on which grooved slides D D' are reciprocated. The slides D D' have standards E formed upon, or otherwise rigidly secured to, them, the upper ends of which are perforated to form bearings for a connecting rod or shaft, F, to which the standards are secured by set-screws *e*, which permit their lateral adjustment on the shaft, and also the partial rotation of the rod or shaft F when required. The shaft or rod F is feathered between the standards E, and has mounted upon it a sleeve, G, grooved to match, and adapted to slide longitudinally upon the shaft, but secured thereto at any desired point of adjustment by a set-screw, *g*. The sleeve G has a pin or stud shaft, *h*, formed upon it, upon which is mounted a vibrating arm or lever, H,

the lower short arm of which is provided with a perforation or bearing for the shaft I, the lower end of which carries the circular file or grinding-wheel J. The upper end of the shaft I has a crank-arm, K, secured to it, through which a rotary movement is imparted to the shaft and file, the upper or long arm of the pivoted arm H constituting a lever for forcing the file across the tooth of the saw. The sleeve G, upon the opposite side of the shaft F to the saw J, is provided with an arm, G', perforated at its outer end to receive a pin on one end of a swinging arm, L, the outer swinging end of which is provided with a set-screw, *l*, for gagging or regulating the bevel of the teeth, as will be explained. One of the clamp-bars A' has a tooth-rack, *a'*, formed upon, or otherwise secured to, it, with which a pinion, M, engages, said pinion being keyed to the inner end of a horizontal shaft, *m*, which has its bearings in a pendent bracket, N, formed upon, or rigidly secured to, the grooved slide D. The outer end of this shaft *m* has a removable notched index-wheel, P, mounted upon it, said wheel being secured to it by set-screw *p*. Any desired number of these indicator-wheels may be provided, with notches varying in their distances apart, to conform to the varying distances apart, or the length of the teeth of the different saws to be sharpened, and that disk or wheel in which the space between the notches coincide with the length of teeth of the saw operated upon will, in operation, be secured to the shaft *m*. Upon the projecting end of the rod or shaft F is mounted, by means of a hub or sleeve, Q', an arm or shaft, Q, secured in the desired relation to the rod F by a set-screw, *q'*. The lower end of this shaft Q has a sleeve, R, mounted upon it, said sleeve being provided upon one side with a V-shaped rib or spur, *s*, adapted to engage with the V-shaped notches in the disk or wheel P, and, upon its opposite side, with an arm or lever, T, by means of which the sleeve R is rotated for moving the spur *s* into or out of engagement with the wheel P for holding the said wheel, and with it the shaft *m* and the saw gumming and filing devices, at the required point of adjustment, or disengaged therefrom for permitting the rotation of the wheel and shaft.

The operation is as follows: The saw being

clamped between the bars A A', and the shaft *m* being provided with the proper indicator-wheel P, in which the distance apart between the notches conforms to the length of the saw-teeth, as explained, the rod or shaft F is rotated in its bearings in the standards E until the position of the saw or grinding-wheel J conforms to the required pitch of the teeth, when the set-screws *e* are tightened, for preventing any rotation of said shaft F, thereby insuring a uniform pitch to all the teeth of the saw. The sleeve G is now moved laterally on the shaft until, by the inward and upward vibration of the arm H, carrying the file, the required bevel shall be given to the teeth, when the set-screw *g* is tightened, insuring the same bevel to all the teeth operated upon from that side. If, now, the set-screw *l* be adjusted until its point shall rest against the side of the saw, with the arm L in contact with the arm G', by reversing the position of the arm L, or changing it to the opposite side of the arm G', when the file is adjusted to act from the opposite side of the saw upon the alternate teeth, the sleeve G will be accurately adjusted for giving the reverse bevel to such alternate teeth by bringing the set-screw *l* to the same relation to the opposite side of the saw. In either position the file or grinding-wheel will be rotated by the crank *k*, while the file is moved across the tooth of the saw by means of the lever H. The first tooth of the saw being thus ground or filed, the file J is retracted, and the wheel P released and moved two notches, moving the slides D D', and with them the file J, the distance of the length of two teeth of the saw, when the saw is moved across the third tooth, and so with the alternate teeth, the entire length of the saw. The sleeve G and file J are then moved to the other side of the saw, and the adjustment of the opposite bevel being secured, as described, the alternate teeth are filed or ground. When the teeth of the saw are not beveled the adjustment of the file to the pitch only is necessary, and the sleeve G being placed directly over the saw the file or grinding-wheel can be vibrated back and forth upon

the teeth by moving the wheel P one notch or tooth only at each vibration.

The file or wheel J may be in the form either of a beveled circular file or filing-disk; or it may be an emery or other cutting or grinding wheel of any preferred form and material in use for that purpose.

Instead of the crank K a pulley may be applied to the shaft I, and operated by an elastic band from any convenient power; or said pulley may be located on the pivotal center *h* of the lever-arm H, and motion communicated thence by spur-wheels or band and pulleys to the shaft I at the vibrating end of said arm.

By the arrangement of the file or grinding-wheel and its adjusting devices, as described, it will be seen that the file may be so adjusted relatively to the saw as to secure absolute uniformity in the length, pitch, and bevel of the teeth, a feature of great importance in insuring the perfect action of the saw, while at the same time the machine is readily adapted to operate on different lengths of teeth by the application to the shaft *m* of an index-wheel, P, having teeth of corresponding length.

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

1. The combination, with the clamp-bars A A', of the slides D D', standard E, feathered shaft F, adjustable sleeve G, lever-arm H, and file J, all arranged and operating substantially as described.

2. The adjustable sleeve G, carrying the lever-arm H and file-wheel J, as described, in combination with the reversible arm L and set-screw *l*, for determining the bevel of the teeth, as described.

3. The saw-clamp, provided with the rack *a'*, in combination with the slides D D', carrying the grinding-wheel and the indicator-wheel P, all arranged and operating substantially as and for the purpose set forth.

JAMES McSWEENY.

Witnesses:

J. DALY,

FELIX TRAINOR.