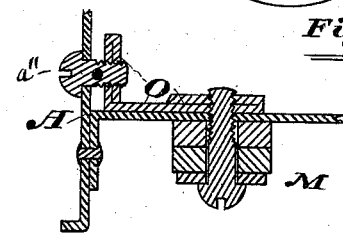
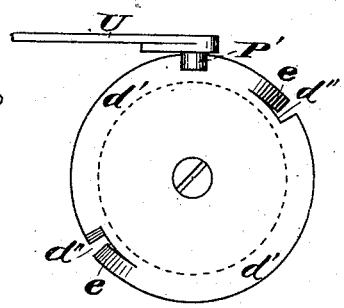
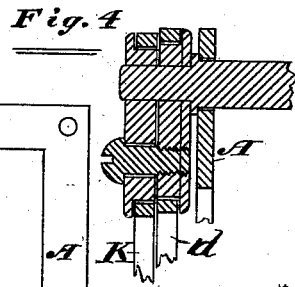
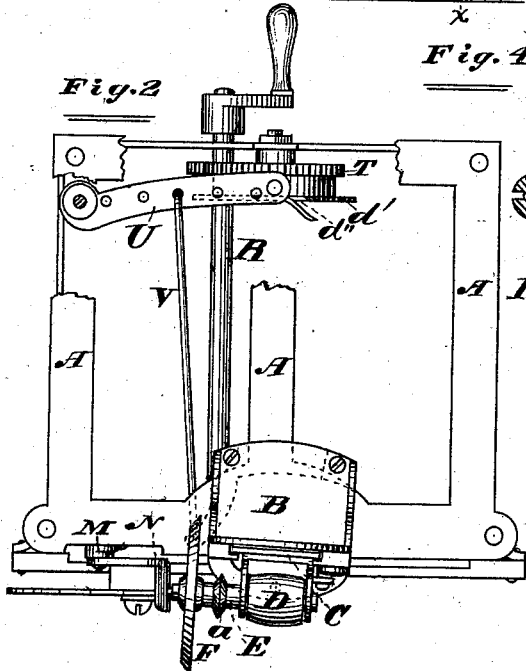
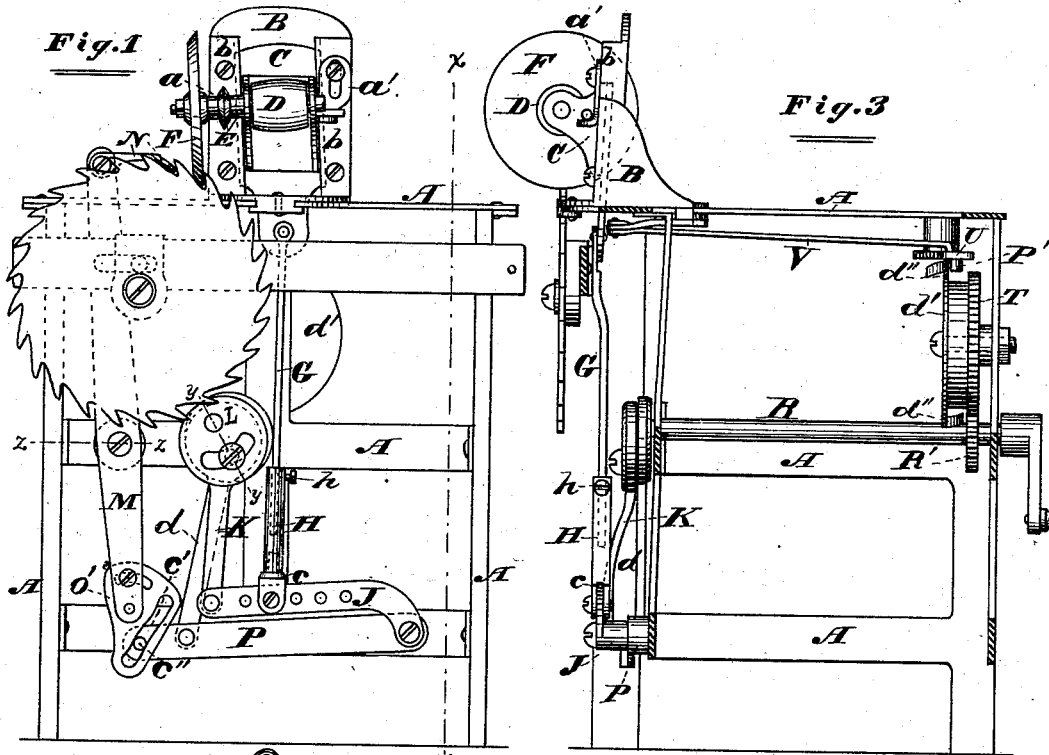


M. COVEL.
Saw-Sharpening Machine.

No. 215,267.

Patented May 13, 1879.



Attest:
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UNITED STATES PATENT OFFICE.

MILO COVEL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN SAW-SHARPENING MACHINES.

Specification forming part of Letters Patent No. **215,267**, dated May 13, 1879; application filed December 10, 1878.

To all whom it may concern:

Be it known that I, MILO COVEL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Saw-Sharpener Machines, of which I hereby declare the following to be a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to construct and operate the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, a view looking from above; Fig. 3, a side elevation, with parts of the frame-work removed, on the line *x x*, Fig. 1; Fig. 4, a sectional detail at *y y*, Fig. 1; Fig. 5, a detail view, and Fig. 6 a sectional detail taken at *z z*, Fig. 1.

The object of my invention is an improved machine for sharpening saws, and is adapted for either straight or circular saws, and is so constructed and arranged as to be automatic in operation.

In the drawings, A represents the frame-work supporting the several parts of the machine. B is a head-piece, operating automatically and having a lateral movement, which movement is in turn communicated to the emery-wheel F, for the purpose of imparting to the saw-teeth any desired bevel. To the front part of this head-piece is attached the inclined ways or guides *b b*, to receive the emery-wheel gate C, made to move on a vertical incline, for the purpose of bringing the emery-wheel in contact with the bottom of the saw-teeth in proper form to impart to the same a fine sharp point.

D represents the emery-wheel arbor, driven from a counter-shaft. (Not shown here.) E is a collar, located at a point between the emery-wheel F and the arbor-bearing, and is provided with the projecting flange or bead *a*, the periphery of said flange being brought to a sharp edge, and is for the purpose of preventing the oil or other lubricant from the arbor-bearings coming in contact with the emery-wheel. The oil from the arbor-bearings follows along to the flange or bead *a*, and is thrown off by the rotation and centrifugal action of the same, thus making it impossible for any oil running to or coming in contact with the emery-wheel from the journal-bearings of these

parts. This simple method and arrangement for preventing the oil following to the emery-wheel forms a very important feature in the successful operation of this machine, as oil on the emery-wheel collects and holds the dust and floating particles, completely filling the pores, forming a smooth glazed surface on the emery-wheel, rendering the same useless for grinding or cutting purposes, and causes the emery-wheel to case-harden the saw-plate or other surface with which it may be brought in contact. By placing a flange or bead of the form shown and described at a point between the emery-wheel and the bearings of the same, on any kind of a machine employing an emery-wheel, the trouble and annoyance caused heretofore by the oil is avoided, and the life of the emery-wheel greatly lengthened.

a' represents an adjustable stop for the gate C to rest upon, preventing the gate from traveling the full length of the stroke, and causing the emery-wheel to remain longer stationary at a certain point, for the purpose of forming a larger throat in the saw-tooth.

G represents an adjustable pitman-rod, the lower end sliding into the sleeve or socket H, provided with the set-screw *h*. This arrangement is for the purpose of shortening the pitman-rod as the emery-wheel grows less in diameter from use, and to lengthen the same when the worn-out wheel is replaced by a new one. The lower end of the sleeve H fits over a pin and forms the loose joint *c*, making the pitman-rod G self-adjusting.

The distance the loose joint *c* is required to be drawn apart is regulated by means of the adjustable stop *a'*, by moving the same up or down, and the farther the loose joint *c* is drawn apart the longer the emery-wheel remains stationary at a certain point, thereby forming a deeper throat in the saw-teeth.

The lateral movement of the head-piece B imparts a twist to the pitman-rod, and the loose joint *c*, having the qualities of a swivel-joint, prevents any strain on the rod, and allows it to properly adjust itself to the movement of the parts to which it is connected.

The pin forming the loose joint *c* is attached to the lever J, provided with a number of holes, which admit of the adjustment of these parts, for the purpose of regulating the depth

of the tooth, one end of the lever J being attached to a part of the frame A and the other end to the eccentric-rod K and the eccentric L, which is provided with a segmental slot, as shown in Fig. 1 of the drawings, for the purpose of making the same adjustable, in order to adapt the machine to form a tooth of a different shape, as may be required.

M represents a feed-arm, to the upper end of which is attached the feed-finger N, which engages with the teeth of the saw, and feeds the same in regular consecutive order to the emery-wheel. The lever M has a bearing near its longitudinal center, at which point the slide O is attached, which is adjusted to different positions by the screw *a'*, for the purpose of giving the emery-wheel a heavy or light cut on the teeth of the saw, as may be required.

O' is an irregular-shaped piece, pivoted to the lower end of the feed-arm M, and is provided with the inclined slot *e'*, in which moves the pin *e''*, which is inserted in the end of the feed-lever P. By this arrangement and combination of these parts a swinging motion is imparted to the feed-arm M, and the more incline given the greater the motion.

The eccentric-rod *d* is connected to the lever P, and the eccentric is placed on the shaft R, having the pinion R' on the opposite end, which makes two revolutions to one of the shifting-gear T, which is provided with the flange or disk *d'*, having the two openings *d'' d''* on the rim of said flange, these openings being opposite each other, as shown in Fig. 5 of the drawings. The parts cut out to form these openings, being bent outwardly from the loose ends, form the inclined guides *e e*, for the purpose of shifting the loose end of the lever U to the right and left in succession.

The pin P' is inserted in the loose end of the lever U, and is made to pass through the openings *d'' d''*, shifting this end of the lever U alternately to the right and left, the other end of the lever U being attached to the frame A.

The lever U has a series of perforations at regular intervals, for the reception of the hook end of the rod V, the other end of this rod being attached to the under side of the head-piece B. This combination and arrangement regulates the throw of the head B, for the purpose of giving a greater or less bevel to the teeth of the saw.

The swinging movement imparted to the emery-wheel by the head B and the operating mechanism is for the purpose of accommodating the emery-wheel to cut first on the one side of the tooth, and then on the opposite side of the next tooth, in alternate succession.

An attachment consisting of a bracket having suitable clamps or jaws for holding straight saws during the process of sharpening is provided, but is not shown here, as it possesses no new or novel features. All the parts adapted to be used in connection with

straight saws may be applied and removed with facility.

The adjustment of the machine when employed to sharpen straight saws should be the same as that already described in connection with circular saws.

The exact construction and operation of the attachment employed to hold straight saws during the operation of sharpening the same is fully set forth in Letters Patent No. 180,115, issued to me July 25, 1876.

The necessary shafts, pulleys, and brackets for supporting the same, for driving the sharpening-machine, not being new, are omitted from the drawings and the description.

This machine effects a great saving in saws, labor, and files, and does perfect work. Its use dispenses with gumming or jointing of saws, and the machine requires no greater number of emery-wheels than the ordinary process of gumming. It leaves the saw round and in perfect balance. Every tooth is dressed after a form, and therefore all alike. These forms may be of any desired shape. The teeth can be either square or fleam, and can be given any desired hook. Lead can be given the saw from the top, the bottom, or both, as may be necessary.

Saws sharpened on this machine can be from two to three gages thinner, require less set, and stand more feed than those sharpened in any other manner.

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

1. The head-piece B, having a swinging movement on its pivot, in combination with the vertically-inclined sliding gate C, substantially as shown, and for the purpose herein described.

2. The combination of the inclined guides *b b* with the sliding emery-wheel gate C and the head-piece B, substantially as described.

3. The combination, with the emery-wheel gate C and stop *a'*, of the self-adjusting pitman-rod G, loose joint *e*, and the horizontal perforated lever J, connected and operating as described, and for the purpose specified.

4. The combination, with the driving-shaft R, of the eccentric and eccentric-rod *d*, lower feed-lever, P, pin *e''*, the irregular cam-piece O', the vertical feed-arm M, adjustable slide O, and the feed-finger N, connected and operating in the manner described.

5. The combination of the pinion R' with the shifting-gear T, flange or disk *d'*, having the openings *d'' d''* on the rim of said flange, the guides *e e*, pin P', the perforated lever U, rod V, and the head-piece B, all being connected and operating in the manner described.

MILO COVEL.

Witnesses:

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D. W. BAMPNER.