

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR SETTING SAWS.

Specification forming part of Letters Patent No. **212,700**, dated February 25, 1879; application filed December 27, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. HOWE, of Milford, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Machines for Setting Saws; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention consists in the construction and arrangement of parts of a device for setting the teeth of saws, which is to be used in combination with the operating parts of a machine for filing saws, which said machine has been made the subject of a separate application for Letters Patent filed on the 14th day of October, 1878. But, inasmuch as the operation of my saw-setting device would not be clearly understood unless described in connection with the parts which operate the saw-filing device, I shall show and describe so much thereof as is necessary to properly elucidate my present invention, without, however, making them the subject of a claim, and such parts as are shown upon the accompanying drawings, but not designated by letters, will be understood as forming no part of my present application.

In the drawings hereto annexed, and which form a part of this specification, Figure 1 is a plan view of my machine. Fig. 2 is a side elevation. Fig. 3 is a cross-section on the line indicated by *x x* in Fig. 1. Fig. 4 is a side view of the detachable part or portion of my saw-setting device; and Fig. 5 is an edge view of the vibrating lever which bends or sets the saw-teeth, and forms a part of my invention.

Similar letters of reference indicate corresponding parts in all the figures.

In the drawings, A is a bed-piece, which may represent a bench or other suitable or convenient support. Upon one end of the bed-piece or support A is journaled a shaft, B, provided at one end with an operating crank or handle, *b*, and pinion *d*, meshing with a beveled gear-wheel, *e*, the shaft *e'* of which is supported upon the bed-piece A in bearings or journals *f f*, connected together by a slotted

plate, *g*, which receives an adjusting-screw, *h*, to permit of the moving of the gear-wheel *e* to and from the pinion *d*. At the other end of shaft B is affixed a crank, *i*, connecting by a pitman, *J'*, with the saw-set carriage C, which travels back and forth in grooved ways D D, cast or otherwise attached to a plate, E, bolted to or cast in one piece with an extension of one of the journal-boxes of the shaft B, and arranged with its dependent portion extending beyond the bed-piece A.

F F¹ are the saw-holding jaws, one of which, F¹, is stationary, and the other movable, or rather pivoted in position with an arm, F², extending down into contact with a jointed or toggle lever, G, the fulcrum of which rests on a plate, H, suspended by stirrups or hangers I I fastened to the under side of the carriage C. It will be seen that by the movement of the carriage back and forth the toggle lever or levers will be so operated on as to cause them to open and close the jaws F F¹, and thus cause said jaws to alternately grasp and release their hold upon the saw to conform to the motion of the forwardly-feeding device.

k is the saw-rest, which is rendered susceptible of vertical adjustment by the slotted extension *k'* and adjusting-screw *k''* to accommodate saws of different width in presenting their teeth to the set.

J J mark the forwardly-feeding device for moving the saw at regular intervals forward, one tooth at a time, after the same has been properly set. This device consists of two curved-faced meeting-levers, J J, one of which is provided with a short lever, *l*, which is acted upon by a screw, *m*, inserted horizontally through a screw-threaded stud on the carriage C. It follows that as the carriage reciprocates the screw *m*, working against lever *l*, will cause the meeting-faces of the feed-levers J J to rock back and forth on each other, and thus produce the feeding of the saw forward, it being placed between said faces or ends of levers. The opposite feeding-lever has a raised flange, forming its head, which is provided with a perforation, into which is inserted loosely a pin projecting laterally from the head of its meeting-lever, as shown in dotted lines in Fig. 1, so that the two feed-levers J J will rock or oscillate in unison

with each other. In feeding, the saw-blade is inserted between the meeting-heads of levers J J, beneath the projecting pin or lug above referred to, and is caused to be clamped firmly, so as to be fed regularly forward without slipping, by means of a spring, m^1 , the free end of which is pressed against alternately upon one side and the other by a reciprocating cam, m^2 , secured upon the bed-plate of the carriage C, as shown in Fig. 1 of the drawings.

M is a plate, which is pivoted so as to be adjustable longitudinally by its arm M^1 in a plate, M^2 , upon frame E. The plate or support M has a projecting perforated stud or lug, s , which will fit into a socketed stud, s^1 , upon plate E, between the side pieces of the frame of the reciprocating carriage C, when plate M is by its pivoted arm or bracket M^1 swung over upon the bed-plate E. When in this position it is held in place by a pin or rod, s^2 , inserted longitudinally through the perforations in the stud s and socket s^1 , so that, by simply withdrawing pin s^2 , plate M, with its appendages, may be swung into or out of place. Secured upon plate M is a casting, W, having a forked or bifurcated projection, $w w$, at each end, and attached adjustably upon its supporting-plate M by a set-screw, x , which passes through a longitudinal slot in plate W. Between the bifurcated lugs $w w$ of plate W is affixed a bar or plate, X, pivoted to the front end of which is a pointed lever, N, the inner end of which is provided with an inserted face-block, t , which, it will be observed, as the outer end of the pivoted lever N is struck and vibrated by the lever O, interposed between it and the V-shaped grooved plate P, riding upon a support, Q, connected to the eccentric or crank shaft e' by a pitman, R, will be operated so as to bend or set one tooth of the saw inserted between its holding-jaws F F¹ slightly outwardly in one direction, and bend the next tooth in the same manner in an opposite direction, and so on until all the teeth have been set. To control the

proper feeding of the saw by the device J J, as described, an oscillating bent plate, S, is pivoted upon bar X, crossing lever N at right angles, which receives its oscillating motion from a cam-lever, U, hung in pins $o o$ upon standards or uprights upon the frame of the reciprocating carriage C, the end of which (lever U) projects in under plate S, which is kept down in contact with said lever by a coiled spring, T.

The support of lever O is longitudinally adjustable to permit of the varying of its leverage as occasion may require, according to the pitch or angle at which the saw-teeth are to be set.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In combination, the shaft B, having pinion d , crank i , and pitman J' , shaft e' , provided with the gear-wheel e and pitman R, vibrating support Q, carrying the adjustable V-shaped contact-plate P, reciprocating carriage C, and longitudinally-adjustable vibrating lever O, substantially as and for the purpose herein shown and specified.

2. The combination of the reciprocating and vibrating lever O with the pivoted lever N, provided with the face-block t and set-plate S, substantially as and for the purpose herein shown and specified.

3. In combination, the feeding device J J, clamp-jaws F F¹ vibrating lever N, provided with the face-block t , pivoted set-plate S, spring T, and reciprocating cam-lever U, substantially as and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM H. HOWE.

Witnesses:

WALTER HENRY WARE,
GEORGE R. WILKINS.