

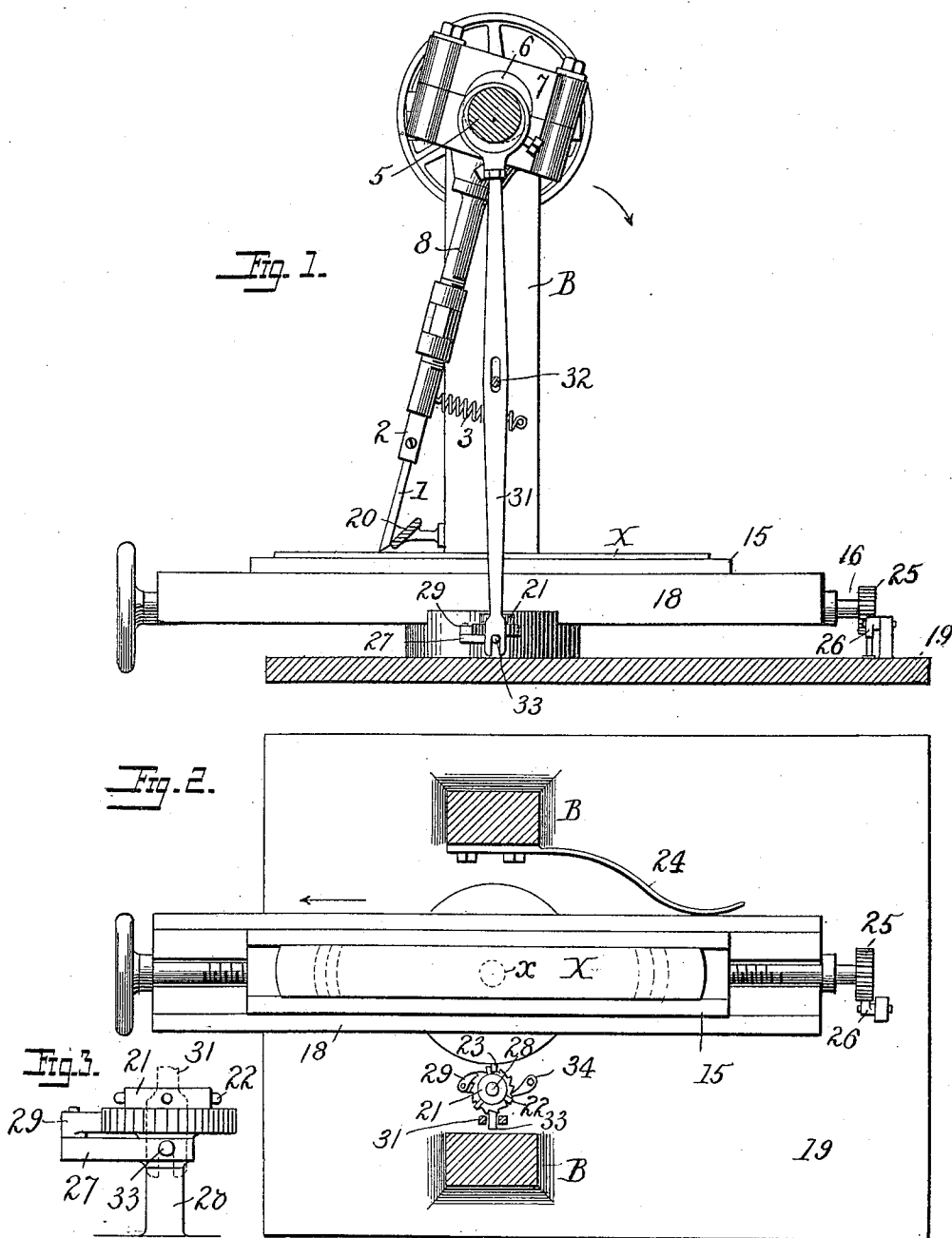
(No Model.)

A. WEED.

MACHINE FOR CUTTING FILES OR RASPS.

No. 460,543.

Patented Sept. 29, 1891.



WITNESSES

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MACHINE FOR CUTTING FILES OR RASPS.

SPECIFICATION forming part of Letters Patent No. 460,543, dated September 29, 1891.

Application filed April 15, 1891. Serial No. 389,052. (No model.)

To all whom it may concern:

Be it known that I, ALFRED WEED, a citizen of the United States, residing at Tarrytown, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Cutting Files or Rasps, of which the following is a specification.

My invention relates to cutting the teeth of files or rasps; and it consists in providing the cutting-tool with an inclined bed and with a bearing over which the tool is reciprocated, and also in means for automatically moving the blank, as fully set forth hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of my improved file-cutting machine. Fig. 2 is a sectional plan. Fig. 3 is a detached enlarged view.

1 represents the chisel or cutting-tool, 2 the stock in which it is secured or forming part of the same, and 8 a carrier in the form of an extensible arm connected with an eccentric-strap 7, fitting an eccentric 6 upon a shaft 5, that turns in bearings of the standards B B, supported upon a suitable base 19.

The file-blank X is suitably secured in a slide or carrier 15, sliding in bearings in a bed 18, that is pivoted at *x* to the base, so as to swing laterally, and that supports a feed-screw 16, by means of which the carriage 15 may be moved longitudinally. Adjacent to the point where the cutting end of the tool comes on the blank is a cross-piece or bearing 20, which serves to direct the lower end of the tool to proper position against the blank, after which the revolution of the eccentric will force inward the end of the tool, carrying the upper end of the stock or holder at the same time toward the blank in the direction of the arrow, Fig. 1, the tool swinging and turning up a fin forming the cutting-tooth of the file or rasp. In performing this operation the tool does not rest upon the cross-piece 20 as a bearing, inasmuch as the lower end of the tool is beveled, and the downward thrust, in consequence of such bevel, carries the tool away from the cross-piece 20, at least to a sufficient extent to prevent the latter from acting as a fulcrum. The cross-

piece 20 is of such a shape that the tool may slide thereon as it rises and descends, a spring 3, connected to the carrier 8, and the frame or standards serving to hold the tool in contact with the cross-piece.

It is desirable in the manufacture of rasps to arrange the teeth upon curved lines, as indicated in dotted lines, Fig. 2; and to this end I have devised means for swinging the bed 18 automatically after each descent of the tool and the formation of each tooth. One means of effecting this movement is shown in the drawings, consisting of a wheel 21, having pins 22, that make contact with a pin 23, extending from the bed 18, the wheel 21 being turned slightly after each downward movement of the tool, thereby swinging the bed against and compressing a spring 24. When a row of teeth has been cut, the pin 22 escapes from the pin 23 and the spring 24 swings the bed back to its first position, after which another pin 22 makes contact with the pin 23, and the bed is swung step by step, as before. It is of course necessary to feed the blank forward in the direction of the arrow, Fig. 2, after each row of teeth is cut. This is preferably effected automatically by means of any suitable feed devices—as, for instance, by a pin or ratchet 25—on the screw 16, engaging a pawl 26, pivoted to a standard of the base, which engagement is effected as the spring 24 carries the bed toward its position after the teeth 22 and 23 escape contact.

Any suitable means may be employed by imparting the step-by-step movement to the wheel 21. For instance, an arm 27 swings upon the standard 28, supporting the wheel 21, and carries a pawl 29, that engages a ratchet on the periphery of the wheel 21 below the pins 22, and a vibrating arm 31, having a strap engaging an eccentric on the shaft 5, slides in and swings upon a pin 32 and is slotted at the lower end to receive a pin 33 on the arm 27, so that as the shaft 5 revolves the arm 31 is vibrated, swings the arm 27, and carries the pawl 29 against the teeth of the ratchet and turns the wheel 21 a single step. The backward rotation of the wheel is prevented by a pawl 34.

It will be evident that while I have shown an eccentric for operating the tool with a di-

rect pressure the latter may be driven percussively, as is the case in some forms of file-cutters, and also that different means may be employed for swinging the bed and feeding the slide automatically.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim—

1. The combination, in a machine for cutting files or rasps, of a bed for supporting the blank, a tool having a beveled end, a bearing or rest for the back of the tool, and means for reciprocating the tool upon said bearing, substantially as set forth.

2. The combination, with the bed for supporting a blank, of a tool, a carrier for supporting the tool, provided with a strap for receiving an eccentric, and a cross-piece 20, arranged to constitute a bearing for the tool adjacent to the blank, substantially as described.

3. The combination, with the cutting-tool of a file or rasp cutter, of a bed supporting the blank and means for automatically swinging the bed a single step on the upward

movement of the tool, substantially as set forth.

4. The combination of the tool, pivoted bed, a wheel having teeth for engaging the tooth of the bed, means for turning said wheel intermittently, and a spring for swinging the bed in one direction, substantially as set forth.

5. The combination of the bed and its tooth, the toothed wheel provided with a ratchet, an arm 27, carrying a pawl engaging said ratchet, and a vibrating arm 31, engaging a pin on the arm 27, substantially as set forth.

6. The bed provided with a slide for receiving the blank, a screw for feeding the slide, and devices arranged to turn the screw as the bed swings in one direction, substantially as set forth.

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

ALFRED WEED.

Witnesses:

DANIEL E. DELAVAN,
DE B. WILMOT.