

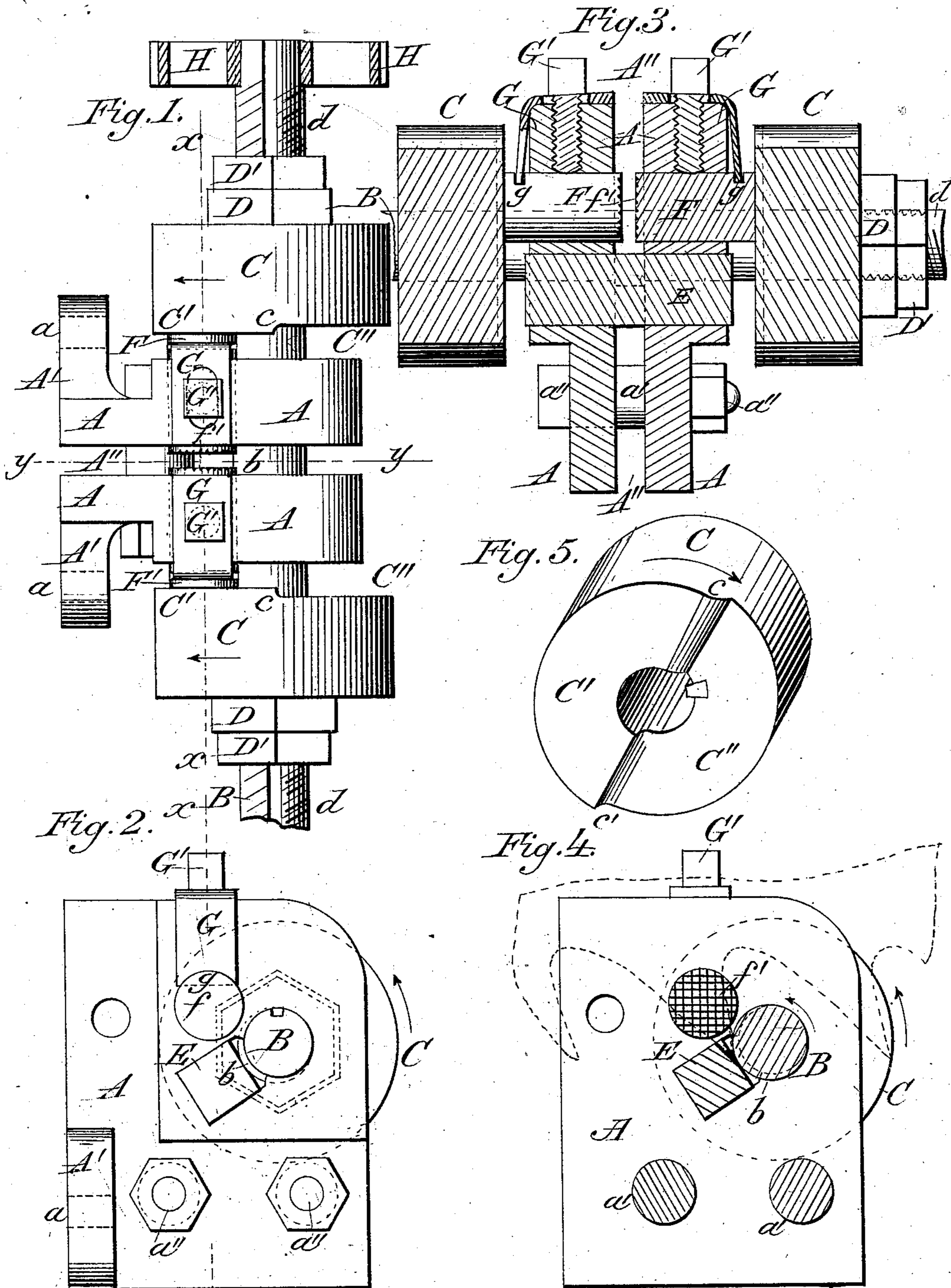
(No Model.)

J. ORM.

MACHINE FOR SWAGING SAW TEETH.

No. 272,465.

Patented Feb. 20, 1883.



Attest: → x
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UNITED STATES PATENT OFFICE.

JOHN ORM, OF PADUCAH, KENTUCKY.

MACHINE FOR SWAGING SAW-TEETH.

SPECIFICATION forming part of Letters Patent No. 272,465, dated February 20, 1883.

Application filed September 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN ORM, a citizen of the United States, residing at Paducah, in the county McCracken and State of Kentucky, have invented certain new and useful Improvements in Machines for Swaging Saw-Teeth; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in machines for swaging the teeth of saws, and is an improvement upon Patent No. 106,978, dated August 30, 1870; and it consists in the construction of the machine, whereby it becomes in its operation automatic or self-acting to clamp the saw-blade and hold it firmly in place while a tooth is being swaged or spread at its point, and as soon as the tooth is so acted upon the saw is released by the clamps, and is free to be moved, so that the next tooth can be acted upon in like manner, as will be fully hereinafter described.

In the drawings, Figure 1 represents a top view of the machine. Fig. 2 represents an upright view of a side plate, its construction, and a spring attached thereto. Fig. 3 represents a longitudinal view, in part section, on line *xx* of Figs. 1 and 2. Fig. 4 represents the inner side of one of the main plates, its construction, and attachments, on line *yy* of Fig. 1; and Fig. 5 represents in perspective a revolving cam that is fast upon the swaging-shaft.

A A represent strong metal plates that form the sides of the machine, and in which or to which the operating parts are attached or secured.

A' A' are flanges projecting at right angles to the face of plates A, having bolt-holes *a* through them to secure the machine to proper and substantial fixtures. Plates A are separated and held apart by the enlarged part *a'* of the screw-bolts *a''*, as seen in Figs. 2, 3, and 4.

B is a horizontal shaft, journaled in the plates A to freely and slowly revolve therein, and at the center of its length, or coincident with the space A'' between plates A, is an eccentric, *b*, that is either affixed around or made

upon and a part of said shaft B and revolves with it.

C C are cams secured upon and to revolve with shaft B by grooves and feathers, or by any other secure means by which they will surely revolve with the shaft and can be adjusted longitudinally thereon. The faces C' of these cams are at right angles to the center of shaft B, while the faces C'' are cut back from the line of rotation of faces C', or from point *c* to point *c'*, while the cut is deeper at *c* than at *c'*, so that in the rotation of the cams the faces C'' will not revolve in the same plane from *c* to *c'*.

D D are screw-nuts to turn upon screw-threads *d* on shaft B and hold the cams C in their proper places, as adjusted.

D' D' are jam-nuts, outside of nuts D, to keep the nuts D from turning back and becoming loose on the shaft B.

E is an anvil, block, or plate, firmly resting in proper openings in plates A at an angle to the perpendicular, as seen in Figs. 2 and 4, and it may or may not have an angular groove in one side or that side next to the shaft B to receive the saw-tooth to be swaged, against which the back of the tooth rests.

F F are reciprocating clamping pins or jaws, placed in proper openings, *f*, in the plates A, are to be exactly opposite each other, and the faces of the ends that project into space A'' between the plates A are serrated or file-cut surfaces, as seen at *f'*, Figs. 1, 3, and 4, and are automatically forced by the cams C to clamp the saw-blade while a tooth is being swaged, and then to release their hold upon the blade, so that it can be moved along to again clamp the blade while the next tooth is swaged.

G G are bent springs, that go over the tops of plates A, and extend down on the outside of said plates and terminate in grooves *g* in the top sides of pins or clamps F, and are secured in place by the holding-screws G', and act to open the clamping-pins when released from the action of the cams C.

H is a spur-gear wheel upon one end of the eccentric-shaft B, and is the means by which the shaft and eccentric is rotated, by having a much larger spur-wheel gear therewith, so as to revolve the shaft B at the proper slow rate of revolution; or the spur-wheel H may be a band-pulley to be revolved by a belt from a

proper-sized driving-pulley to give the proper revolution to shaft B.

At Fig. 4, in dotted lines, is shown a section of a saw plate or blade, with a tooth in position to receive the action of the eccentric in swaging the cutting-point of the tooth, while the back of the tooth rests firmly against the anvil or plate, and also the position of the clamping-jaws upon the saw-tooth. A swaging-machine thus constructed with the eccentric shaft in continuous revolution, either by power or by hand, and at the proper rate of speed, automatically clamps and holds the saw when in position and a tooth is being swaged, and after swaging releases the clamps from contact with the saw, so that the saw can be fed along to the next tooth to be acted upon.

The springs G are so constructed that they can be adjusted under the holding-screws G' to open a wider space between the pins F when free from pressure by the cams C, so that saws of different thickness of plate can be clamped between the pins, and have the requisite pressure, and no more, upon the plate at all times. The cams C are also to be adjusted upon shaft B to give a greater or less pressure upon the clamping-pins, as may be desired, by means of the screw-nuts D D'.

Figs. 1, 2, and 4, show the eccentric swage *b* in position as actually swaging a tooth, with the faces C' of cams C pressing against the outer ends of the clamping-pins F, forcing the pins in their bearings in plates A against the opposite sides of the saw-plate, so holding them until the revolution of the eccentric *b* on shaft B has acted upon the tooth and is leaving contact therewith, when the cams C have also revolved, so that the faces C' of the cams will pass off the pins at *c'*, which relieves the pins from pressure, and the springs G act to force them apart and out of contact with the saw-plate, and the saw is free to be moved during a half-revolution of the shaft B, eccentric *b*, and cams C, to bring another tooth in position to be acted upon, when the cams C, with their faces C' out of contact with the

clamping-pins, will have revolved far enough to bring the faces C' at *c* against the pins, forcing them again in hard contact with the sides of the saw-plate while another tooth is swaged, and so continuing with all the teeth of the saw, whether the saw be straight, a circular, or a band saw.

Having thus described my invention, what I claim is—

1. The combination, in a machine for swaging the teeth of saws, of a revolving eccentric swage, *b*, anvil or block E, and an automatic clamping device consisting of the revolving clamping and releasing cams C, reciprocating clamping-pins F, and springs G, constructed and operating substantially as and for the purposes described.

2. In a machine for swaging saw-teeth, the combination of the revolving cams C, having the faces C' and C'', offsets *c* and *c'*, with the reciprocating clamping-pins F, having their adjacent faces serrated, as and for the purposes described.

3. In a machine for swaging saw-teeth, such as above described, the automatically-reciprocating clamping-pins F, having the adjacent faces thereof serrated or toothed, constructed and operated as and for the purposes described.

4. The combination, in a machine for swaging saw-teeth, of the reciprocating clamping-pins F, having their adjacent faces serrated, the adjustable springs G, and their holding-screws G', as and for the purposes described.

5. A machine for swaging saw-teeth, consisting of the combination of the plates A, bolts *a''*, having the enlarged parts *a'*, a revolving shaft, B, having eccentric *b*, and cams C thereon, anvil or block E, clamping-pins F, and springs G, constructed to operate substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN ORM.

Witnesses:

DÉSIRÉ DUFLLOT,
L. A. M. GREIF.