(No Model.) 2 Sheets—Sheet 1.

F. M. LEAVITT & A. O. KITTREDGE.

MALLETING MACHINE.

No. 343,540. Patented June 8, 1886.

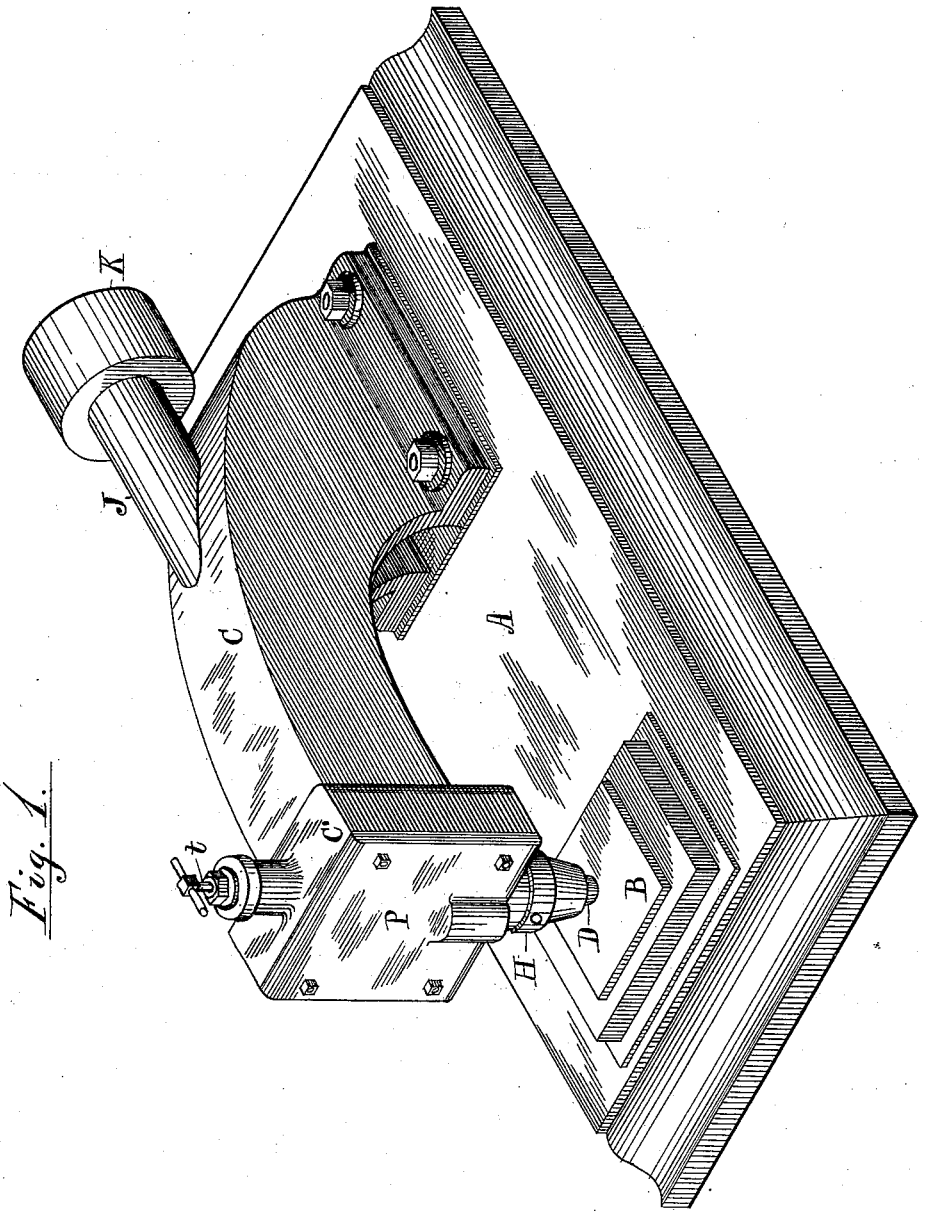

Fig. 1.

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Henry J. Thuerath

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per Crane & Miller, Attys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

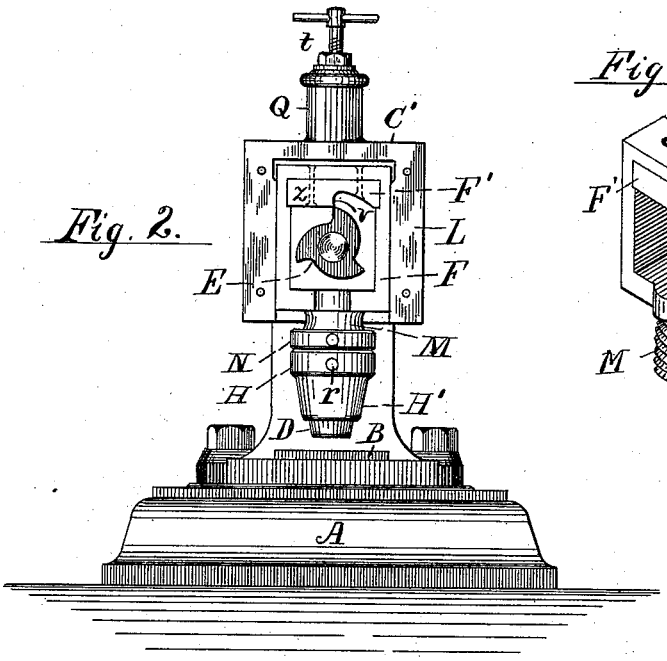
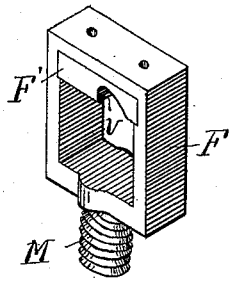


Fig. 4.



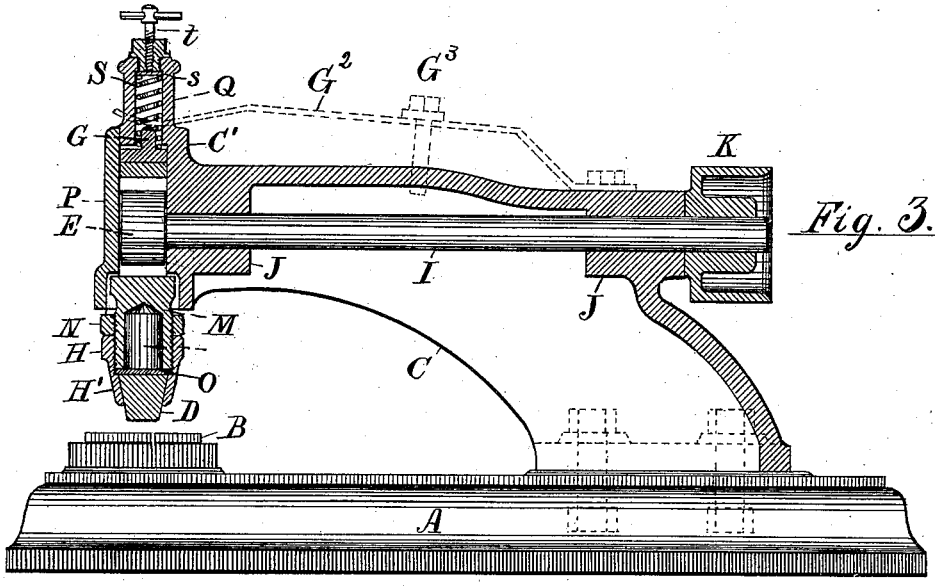


Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANK M. LEAVITT, OF BROOKLYN, AND ANSON O. KITTREDGE, OF SLATE HILL, NEW YORK.

MALLETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 343,540, dated June 8, 1886.

Application filed October 29, 1885. Serial No. 181,308. (No model.)

To all whom it may concern:

Be it known that we, FRANK M. LEAVITT, and ANSON O. KITTREDGE, citizens of the United States, residing respectively, in Brooklyn and Slate Hill, counties of Kings and Orange, in the State of New York, have invented certain new and useful Improvements in Malleting-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improved device for removing or flattening the burrs formed at the edge of thin sheet metal by shearing the same, and is particularly adapted for the use of cornice-makers and other workers in thin sheet metal.

Our improvements consist in the combination and arrangement of the parts for lifting the mallet from the anvil, for driving the same elastically toward the anvil, and for securing the mallet upon the vibrating head.

The construction will be understood by reference to the annexed drawings, in which Figure 1 is a perspective view of the entire machine. Fig. 2 is a front elevation of the same, with the cap over the vibrating head removed. Fig. 3 is a side elevation, partly in vertical section, on the center line of the vibrating head, the bed, the driving-shaft, rotary cam, and the adjusting-screw over the vibrating head not being in section; and Fig. 4 is a perspective view of the vibrating head, with the hammer and its sleeve and lock-nut removed.

A is the bed of the machine, of flat form, adapted to sustain an anvil, B, of any desired form, and having a bracket-frame, C, secured thereon to overhang the anvil and sustain the mechanism for vibrating the mallet D. Such mechanism consists in a rotating cam, E, vibrating frame F, pressure-spring G, and sleeve H, for securing the mallet to the vibrating head. The cam is affixed to the front end of a shaft, I, sustained in bearings J in the top of the bracket C, and is rotated by a pulley, K, at its rear end. The vibrating head F is formed as a sliding frame, adjusted around the cam E, and fitted to vertical guides L upon the front end of the bracket at C'. The frame is pressed toward the anvil B by the spring G, and is provided at its lower end with a nozzle, M, formed with a screw-thread, upon which is fitted a sleeve, H, having at its lower end a tapering socket, H', to contain the butt of the mallet D. The mallet is a wooden plug of tapering form, with its larger end inclosed in the socket H', into which it is inserted before the latter is screwed upon the nozzle M. The nozzle is shown by the shading in Fig. 3 as having a cylindrical hollow, U, formed therein to lighten the same, and a washer, O, being inserted beneath the base of the plug to close such hollow. The mallet is clamped firmly against the washer by screwing the socket upon the nozzle, where it is prevented from jarring loose by a lock-nut, N. The sleeve and lock-nut may be shaped to fit an open wrench, but are shown in the drawings of circular form, and provided each with a hole, *r*, to receive a spanner-wrench. The head F is shown herein as a plain rectangular frame inclosed at the back by the front of the bracket at C', at its sides by the parallel guides L, and upon the front by a flat cap, P, (shown in Figs. 1 and 3,) which entirely incloses the head and the cam. The spring is shown at S in Fig. 3 as of helical form, contained in a socket, Q, attached to the front C', and having its lower end resting upon the head F, and its upper end pressed by washer *s* and screw *t*, by which the pressure of the spring can be adjusted. A stud, G, is shown upon the top of the head, to hold the base of the spring rigidly in position. The cam E is formed with three similar spiral teeth, and the head is provided inside its upper end with a steel plate, F', forming a rectangular seat, *v*, against which the teeth of the cam operate, in succession, to lift the head and let it fall upon the anvil. A single rotation of the driving-shaft I thus operates to lift the mallet three times, and to produce as many blows upon the metal laid on the anvil. When in operation the shaft is rapidly rotated by applying a belt to the pulley K. The edge of the sheet metal or any portion of the surface which it is desired to smooth is introduced and gradually moved along between the mallet and the anvil, and the spring being adjusted to the proper tension the mallet delivers a rapid succession of blows upon the metal and reduces its roughnesses in the most perfect manner. This construction is

intended as a substitute for the oscillating hammers heretofore used for the same purpose, and the reciprocating movement of the vibrating head is much more easily effected than the oscillation of the pivoted handle frequently used heretofore.

The screw-nozzle M and the screw-sleeve provided with the tapering socket furnish convenient means for removing the mallet D and replacing the same when worn, and the spring affords a convenient means for regulating the force of the blows produced.

The plate F′, against which the cam operates, is shown as secured in the top of the vibrating head by rivets *z*, and may thus be easily detached and replaced when worn, while the construction of the entire head is such that there are no moving parts liable to displacement by the jarring action of the mallet.

The washer O may be made of rubber, leather, or semi-elastic materials, if desired, to modify the effect of the blows upon the mallet and upon the mechanism which moves therewith.

It is immaterial how the anvil B is shaped or attached to the bed, or what form be given to the mallet where it strikes upon the same, as any modification of shape may be given to these parts without affecting our invention, which consists in the other constructive features claimed herein.

It will be noticed that the nozzle M is affixed centrally to the lower edge of the rectangular frame which forms the body of the vibrating head F, and that the cam being inserted within such rectangular frame operates upon the seat *v*, directly over the center of the nozzle and mallet-plug, and thereby lifts the weight and overcomes the resistance of the spring without tipping the head in any direction or augmenting its friction against the cap P and guides L.

The formation of the vibrating head as a hollow or open frame enables us to apply the lifting-force exactly over and in a line with its center of gravity, and thus enables us to secure great rapidity of movement without much jar or vibration of the stationary parts.

In Fig. 3 an alternative form for the spring is shown in dotted lines at G^2, where a leaf-spring is shown attached to the top of the bracket-frame C, near its rear end, and having its front end projected over and in contact with the stud G′. A screw, G^3, is shown fitted through the spring into the top of the bracket, to increase its tension by pressing the same toward the top of the vibrating head. In this construction the socket Q would be omitted and the stud G project sufficiently above the front C′ to bear against the spring during its entire stroke. The rectilineal movement of the mallet-plug secures an even blow upon metal of any thickness and avoids the jar which is occasioned by the striking of one edge of the plug upon the metal, as in machines where the plug is carried at the end of a vibrating arm, and the arm is lowered by the gradual wear of the plug, and is raised when a new one is inserted. The plug in our invention can therefore, when renewed, be more readily fitted to a proper bearing upon the sheet metal than when applied to the end of a vibrating arm, and tends always to wear evenly, so that one edge is not brought into more forcible contact than another, as in the plugs carried upon the end of a vibrating arm.

Having thus set forth the nature of our improvements, what we claim is—

1. In a malleting-machine provided with a bed, an anvil, and a frame overhanging the anvil, substantially as described, the combination, with a vibrating head, of means for holding a removable mallet-plug thereon, a spring for pressing the head and plug toward the anvil, and a rotating cam operating directly upon the head to lift the same against the pressure of the spring, substantially as shown and described.

2. In a malleting-machine, the combination, with the anvil and guides supported above the same, of a vibrating head formed as a hollow frame, a spring for pressing the head toward the anvil, a seat within the upper part of the head, and a rotating cam inserted within the head and actuated in contact with the seat to raise the head against the pressure of the spring, substantially as shown and described.

3. In a malleting-machine provided with a bed, an anvil, and a frame overhanging the anvil, substantially as described, the combination, with the overhanging bracket-frame C, of the guides L, the vibrating head F, provided with internal seat, *v*, and nozzle M, the spring G, fitted in socket Q upon the front of the frame, as described, the set-screw *t*, and the rotating shaft I, sustaining the cam E within the vibrating head, the whole arranged and operated substantially as shown and described.

4. In a malleting-machine provided with a bed, an anvil, and a frame overhanging the anvil, substantially as described, the combination, with the vibrating head F, spring G, and the cam E, operating within the head to lift the same against the pressure of the spring, as described, of the nozzle M, attached to the head, the shell H, screwed thereon and provided with the tapering socket H′, the tapering mallet-plug D, clamped against the end of the nozzle by the shell H, and the lock-nut N, clamped against the sleeve upon the nozzle, the whole arranged and operated substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

FRANK M. LEAVITT.
ANSON O. KITTREDGE.

Witnesses:
WILLIAM F. SMITH,
THOS. S. CRANE.