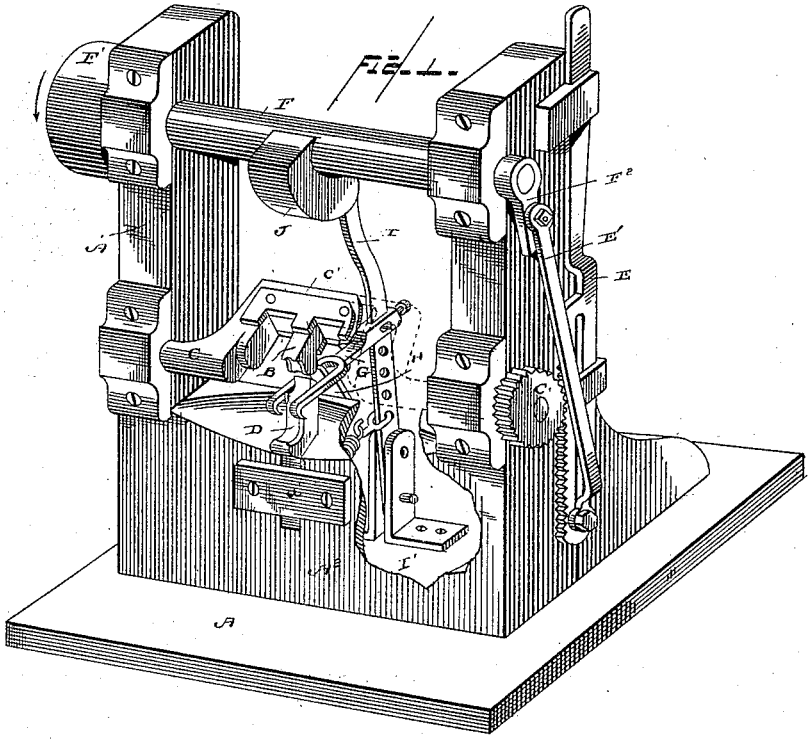
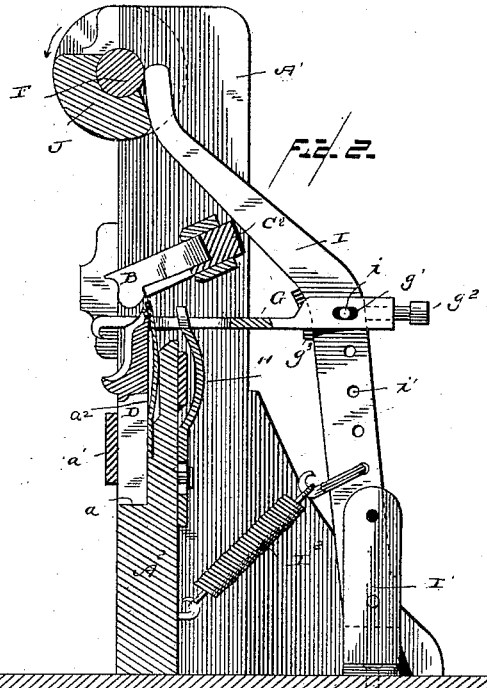
(No Model.) 2 Sheets—Sheet 1.

H. C. BILTON.

MACHINE FOR TONGUING BUCKLES.

No. 344,894. Patented July 6, 1886.





Witnesses
Norris A. Clark
R. W. Bishop.

Inventor
Henry C. Bilton
By his Attorneys,
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

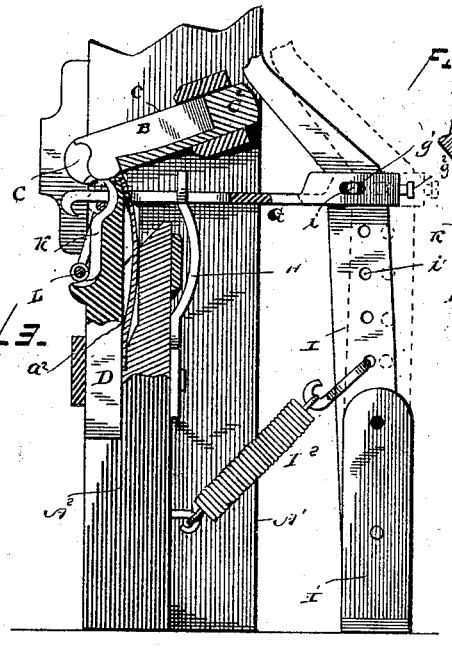


Fig. 4.

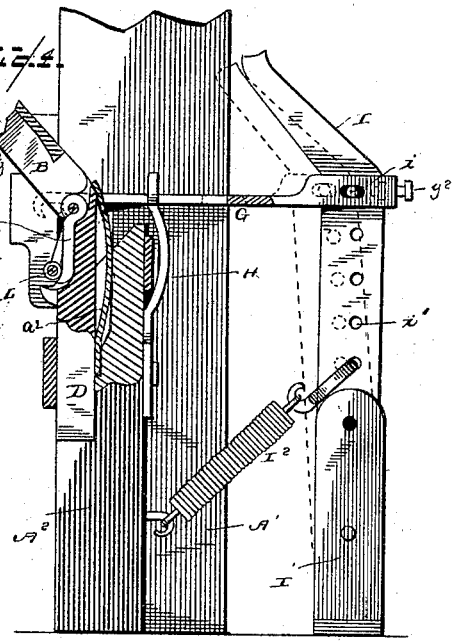


Fig. 5.

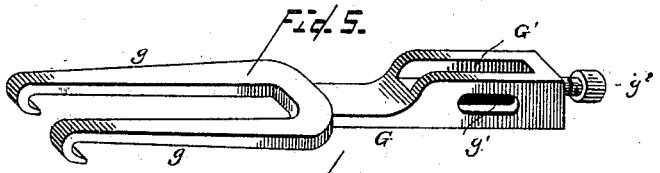


Fig. 6.

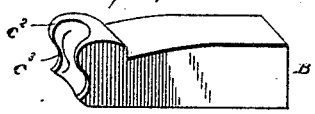
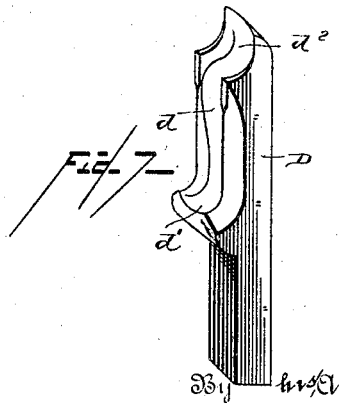


Fig. 7.



Witnesses
Norris A. Clark
R. W. Bishop.

Inventor
Henry C. Bilton
By his Attorneys,
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UNITED STATES PATENT OFFICE.

HENRY C. BILTON, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO JOHN F. McGEE, OF SAME PLACE.

MACHINE FOR TONGUING BUCKLES.

SPECIFICATION forming part of Letters Patent No. 344,894, dated July 6, 1886.

Application filed April 5, 1886. Serial No. 197,849. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. BILTON, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Machines for Tonguing Buckles; 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.

My invention relates to machines for tonguing buckles, its object being to secure the tongue cut from wire to the cross-bar of the buckle at one operation, and in such manner that the end of the tongue bent around the bar of the buckle is formed into a true or nearly true circle, thus permitting the tongue having a free movement about its bar without any binding.

It consists in the novel features more fully hereinafter set forth and claimed, and shown in the annexed drawings, in which—

Figure 1 is a perspective view of the machine with parts broken away. Fig. 2 is a vertical central sectional view. Fig. 3 is an enlarged detail view of a portion of the bed-former die and holder, showing a buckle in position, with the tongue in place prior to being secured to the buckle. The dotted lines indicate the operative position of the holder. Fig. 4 is a view of the same parts, indicating their position after having secured the tongue to the buckle. The dotted lines show the position of the holder after releasing the tongued buckle from the bed. Fig. 5 is a perspective detail of the holder. Figs. 6 and 7 are perspective detail views of the forming and bed dies, respectively.

The base A is provided with uprights or standards A′. The lower ends are united by a cross-piece, A^2, which is socketed to receive and support the bed or die D. Crank-shaft C, mounted in bearings directly above the bed, and having a forming-die, B, fixedly secured to its crank, is provided on its outer side with a gear-wheel, C′, keyed thereto, meshing with a reciprocating rack-bar, E, working in suitable bearings on the standard. Shaft F, mounted in suitable bearings near the top of the standards, receives a rotary movement from any suitable source of power, preferably by means of a band-wheel, F′, and communicates the same to the rack-bar by means of a crank, F^2, and pitman E′, adjustably interposed between the rack-bar and crank, so as to vary the movement of the rack-bar to adapt the machine for effective operation on buckles of various grades. The crank F^2, rack-bar E, gear-wheel C′, and pitman E′ are so proportioned and disposed that the crank-shaft C receives only a partial rotary or rocking motion in its bearings, thus giving a vibratory movement to the forming-die D in the arc of a circle of which the axial line of the crank-shaft is the center. The bed-die D is provided with the usual groove, *d*, terminating at its lower end in an offset, *d′*, and at its upper end in a concavity, d^2, which is somewhat larger than the groove *d*. The groove in the offset is contracted to receive the end of the tongue and support the same when in position to be secured to the buckle. The concavity d^2 is formed on the arc of a circle, and the bed or die is so placed that the center of said circle will coincide with the axial line of the crank-shaft. The bed-die is set in a recess or socket, *a*, and is removably held therein by keeper *a′*. Spring a^2, interposed between the rear of the bed-die and the bottom of the recess, allows a slight yielding of the die, in case the end of the tongue should be slightly enlarged, so as to prevent injury to any of the parts of the machine. The forming-die B is seated in a recess, *c*, in the crank C^2 of the crank-shaft C, and is detachably held therein by a keeper, *c′*. The end of the forming-die is convexed at the lower inner corner, c^2, corresponding with the concavity d^2 of the bed-die. A concave-seat, c^3, extending across the end of the die parallel with the convex portion c^2, forms a segment of a circle corresponding with the concavity d^2 of the bed-die. A holder, G, bifurcated at one end, is sustained by a support, H, adjustably secured to the cross-piece A^2. The opposite end of said holder is provided with a mortise or opening, G′, at right angles to the plane of the bifurcations or arms *g*. Lever I, adjustably connected with

a bracket, I′, on the base passing through the opening G′ in the holder, is adjustably connected therewith by a pin, *i*, passing through one of a series of openings, *i′*, in the lever, and an elongated opening, *g′*, in the holder at right angles to opening G′. To effect a much nicer adjustment, a set-screw, g^2, extends through the end of the holder, and is adapted to bear upon the rear edge of the lever. A buffer, g^3, interposed between the opposite end of the opening G′ and the front edge of the lever, deadens the noise incident to the striking of the lever and holder, when the latter is carried forward to release the buckle. Cam J on the shaft F is arranged to bear on the upper end of the lever I and force the same outward, carrying therewith the holder, an arm, *g*, of which is arranged to come on each side of the bed-die. The outer ends of the arms are bent downward or hooked to engage the cross-bar of the buckle and hold it close to the bed during the operation of the forming-die.

The operation of the machine is as follows: The parts being in the position shown in Figs. 1 and 3, a tongue, K, is seated in the groove *d* in the bed, and the cross-bar of a buckle, L, to which the tongue is designed to be secured, is placed across the bent end *k* of the tongue. A partial movement of the shaft F causes the cam J to engage the lever and force the same outward, carrying the holder, which engages the cross-bar of the buckle on each side of the bed or die and firmly holds it in place. During this movement of the holder the crank-shaft is practically stationary, owing to the crank-arm F^2 on the shaft F being at its lowest point, and the pitch of the cam J being steep, so as to effect a quick movement of the holder. After the operation of the holder the crank-shaft moves and carries the forming-die about the arc of a circle. The end of such die, contacting with the end of the tongue, bends the same about the cross-bar of the buckle in a true circle, as clearly shown in Fig. 4. The cam J is of such length that it contacts with the end of the lever during the entire forward movement of the forming-die; but the moment such die has performed its work the cam is disengaged from the lever, which is returned to its normal position by a retracting-spring, I^2, carrying with it the holder, which releases the buckle, as indicated by dotted lines, Fig. 4. The holder remains in this position till the forming-die returns to its normal position, when the machine is in readiness for a repetition of the operation just described.

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

1. In a machine for securing tongues to buckles, the combination of a bed-die having a concaved upper end, an offset at a distance from the end, and a tongue-receiving groove formed vertically in its face, a holder for securing the buckle in place on the bed, a forming-die having corresponding convexed and concaved end portions, and a movable support for carrying the forming-die about the concaved end of the die, substantially as and for the purposes set forth.

2. In a machine for securing tongues to buckles, the combination of a bed-die having a concavity at its upper end and a forming-die having a corresponding convex and concave portion to work in conjunction with the bed-die, as and for the purposes set forth.

3. In a machine for securing tongues to buckles, the combination of a bed-die, a forming-die, a support for carrying the same around in a curvilinear path, a holder to secure the buckle to the bed, provisions to actuate said holder at the end of each movement of the forming-die, and an adjustable support for the holder, substantially as set forth.

4. In a machine for securing tongues to buckles, the combination of a support having a recess or socket, the bed-die seated in said recess, a spring inserted between the rear side of the bed-die and the bottom of the recess, a holder, a forming-die, and a support therefor to carry it around in a curvilinear path against the face of the bed-die, substantially as described, and for the purposes set forth.

5. The combination of the bed-die, forming-die, crank-shaft having the forming-die rigidly secured thereto, holder having bifurcated end, forming-arms to work on each side of the bed-die, a lever engaging said holder, and a shaft for actuating the lever and crank-shaft, whereby the holder is actuated at or near the end of each movement of the crank-shaft, substantially as and for the purpose set forth.

6. In a machine for securing tongues to buckles, the combination of a support, a bed-die yieldingly held therein, a crank-shaft, a forming-die fixedly secured thereto, a gear-wheel keyed to said shaft, rack-bar meshing therewith and adjustably connected with a crank-arm on a power-shaft, a bifurcated holder working on each side of the bed-die, a lever engaging said holder, and a cam on the power-shaft for actuating said lever, the parts being disposed substantially as shown and described, whereby the holder is actuated at each end of the movement of the rocking crank-shaft.

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

HENRY C. BILTON.

Witnesses:
HENRY ZINK,
MAUD BILTON.