

(No Model.)

3 Sheets—Sheet 1.

S. T. HISLEY & J. A. MUNDY.
MACHINE FOR FORMING CLASP TONGUES.

No. 418,915.

Patented Jan. 7, 1890.

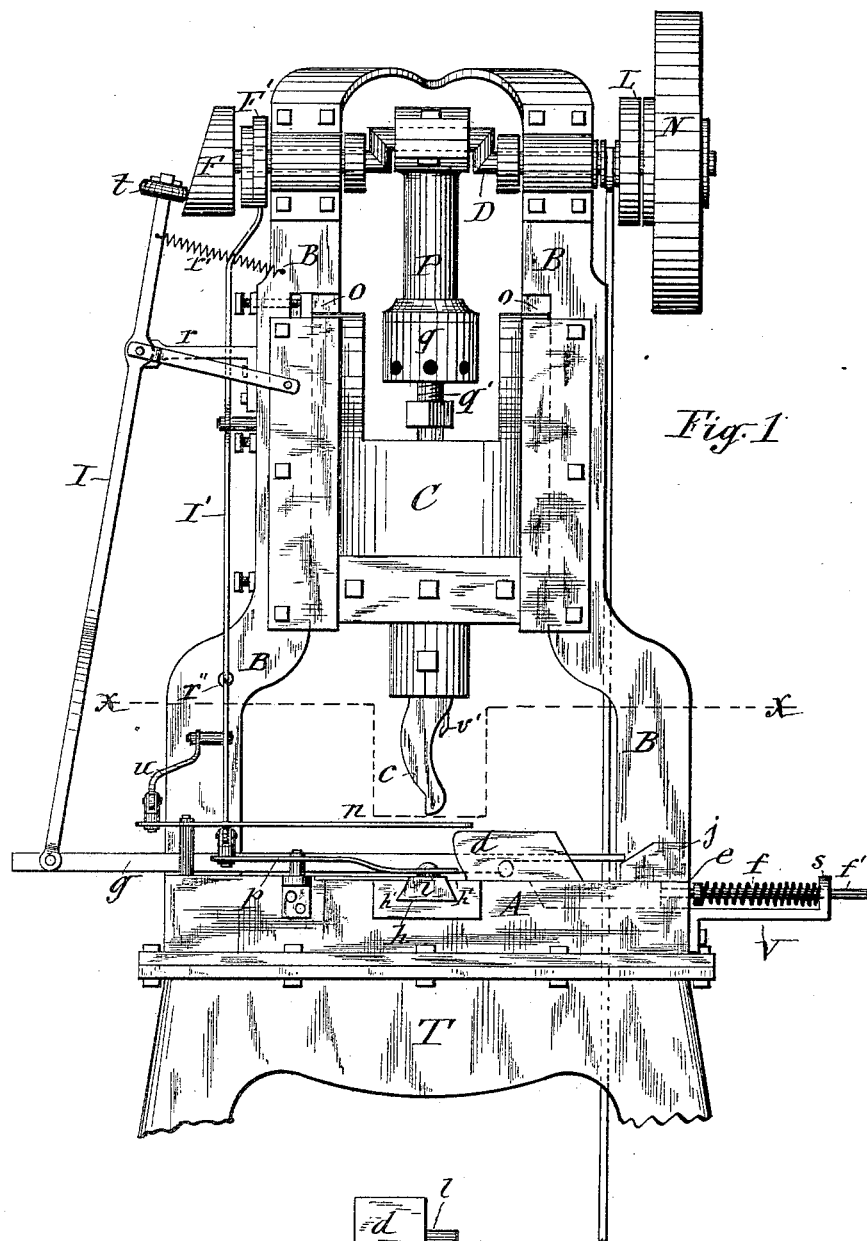


Fig. 1

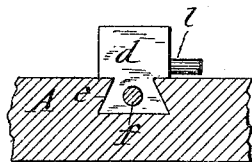


Fig. 7

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John A. Mundy
BY
Smith, Lassar & Bull
ATTORNEYS

(No Model.)

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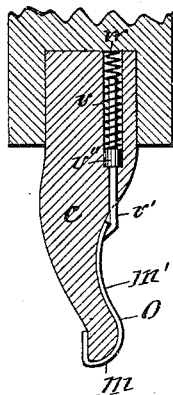
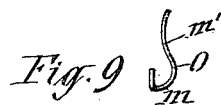


Fig. 10

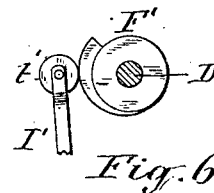


Fig. 6

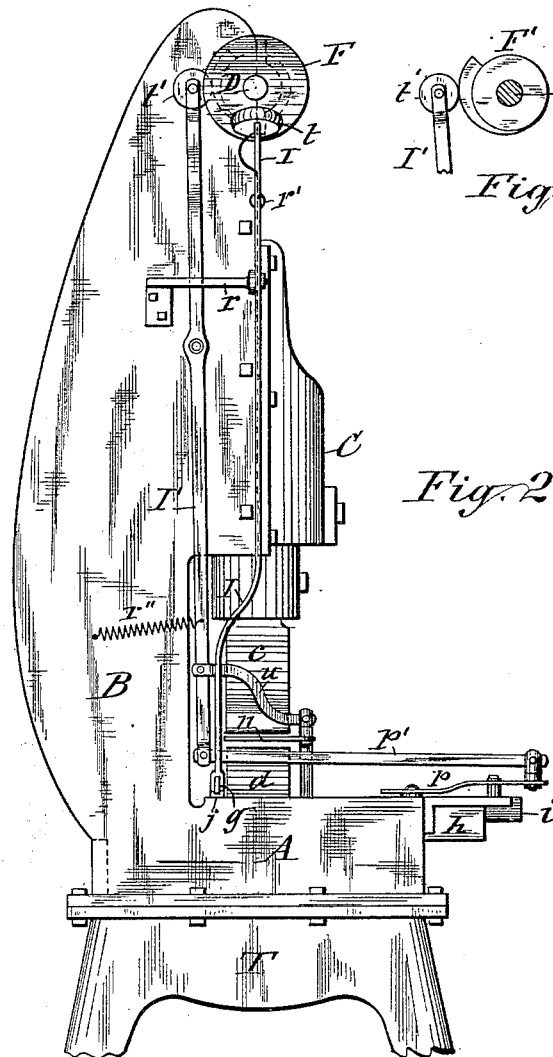


Fig. 2

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C. L. Bendison

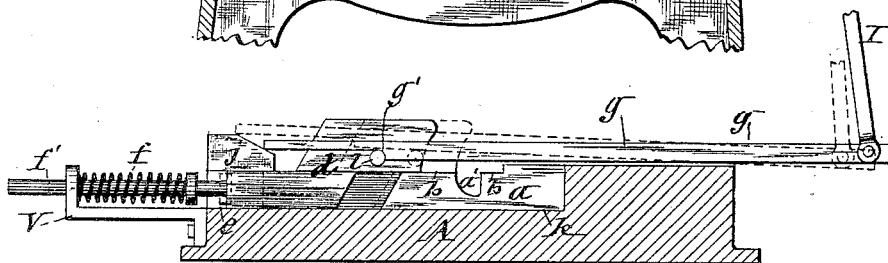
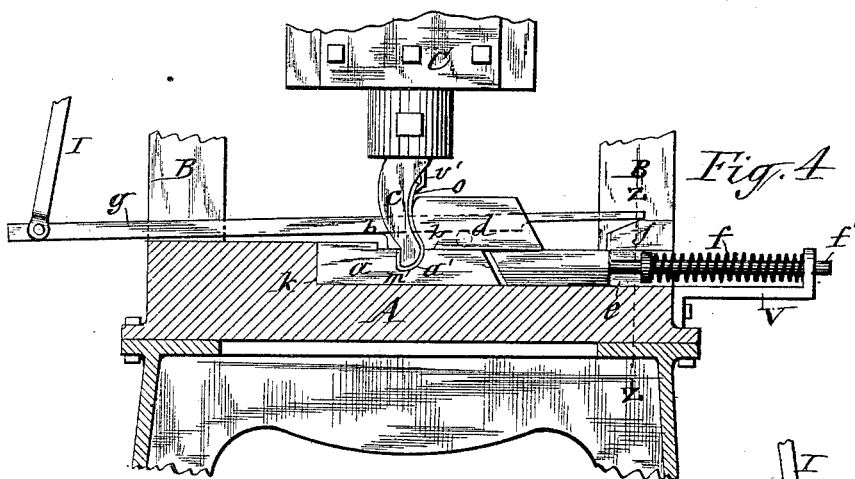
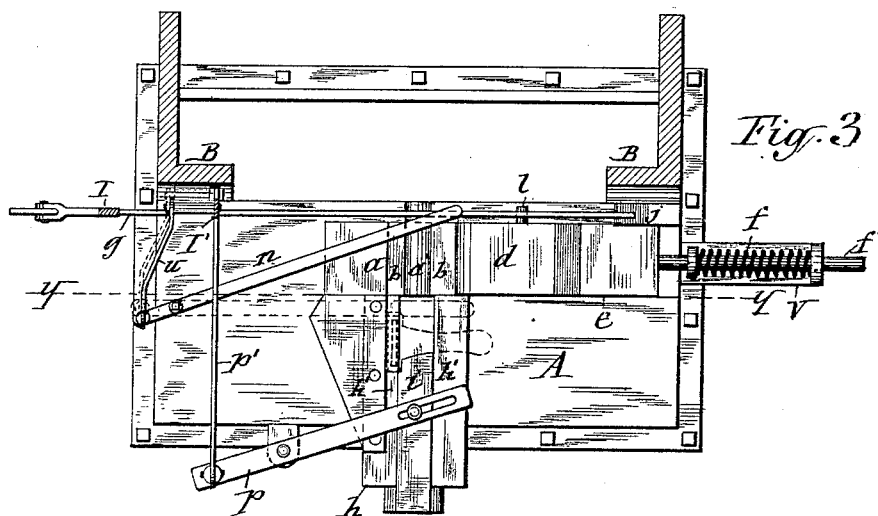
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3 Sheets—Sheet 3.

No. 418,915.

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Fig. 5

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UNITED STATES PATENT OFFICE.

STEPHEN T. HISLEY AND JOHN A. MUNDY, OF SYRACUSE, NEW YORK,
ASSIGNORS TO THE SYRACUSE SPECIALTY MANUFACTURING COM-
PANY, OF SAME PLACE.

MACHINE FOR FORMING CLASP-TONGUES.

SPECIFICATION forming part of Letters Patent No. 418,915, dated January 7, 1890.

Application filed September 25, 1889. Serial No. 325,041. (No model.)

To all whom it may concern:

Be it known that we, STEPHEN T. HISLEY and JOHN A. MUNDY, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in a Machine for Forming Clasp-Tongues, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the manufacture of the tongues of a certain species of clasps usually applied to arctic overshoes; and the invention consists in a novel organization of a machine by means of which the aforesaid tongues can be struck up into their requisite shape from blanks of sheet metal in a most convenient, expeditious, and perfect manner.

In the annexed drawings, Figure 1 is a front elevation of a machine embodying our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a horizontal transverse section on line *xx*, Fig. 1. Fig. 4 is a vertical transverse section on line *yy*, Fig. 3. Fig. 5 is a reversed side view of the stationary die and horizontally-reciprocating die. Fig. 6 is a detached side view of one of the cams of the crank-shaft and end of the lever, which is actuated by said cam. Fig. 7 is a vertical transverse section on line *zz*, Fig. 4. Fig. 8 is a plan view of a blank from which the clasp-tongue is formed. Fig. 9 is an edge view of said tongue complete, and Fig. 10 is a longitudinal section of the vertically-reciprocating die.

Similar letters of reference indicate corresponding parts.

A represents the bed of the machine, which is mounted on a suitable standard T, said bed being provided in its top with a recess *k*, in which is firmly secured the stationary die *a*, which is formed with a groove *a'* in its top, and with smooth horizontal bearings or seats *b b* at opposite sides of the groove. Said groove is of the same shape in cross-section as the short bend *m* of the tongue O. (Shown in Fig. 9 of the drawings.) In line with the groove *a'* is a guide *h*, secured in a groove in the bed A. Said guide is formed with a chan-

nel, which is also in line with the groove *a'*, and the surfaces at opposite sides of said channel are horizontal and form seats *h' h'*, coinciding with the seats *b b* of the die *a*. In the guide *h* slides longitudinally the feed-slide *i*.

At one side of the die *a*, and at right angles thereto or to the groove *a'* thereof, is a guide-groove *e* in the bed A, and in said latter groove slides longitudinally the die *d*, which is in a plane immediately above the die *a*, and has the end which is over the die *a* formed with a face corresponding to the curvature or plane of the main portion *m'* of the tongue O.

The die *d* is forced inward and over the die *a* by means of a suitable spring, preferably of spiral form, as shown at *f*, which spiral surrounds a stem *f'*, projecting horizontally from the outer end of the die *d* and through an upright arm of a bracket V, attached to the side of the bed A, as shown in Figs. 1, 3, 4, and 5 of the drawings. The spring presses with its outer end against the inner side of the bracket-arm and with the opposite end against a collar affixed to the stem *f'*.

From the bed A rises a rigid upright frame B, which is provided with vertical guides *oo*, in which slides the plunger-head C, and to the bottom of the latter is connected the die *c*, which has its lower or free end conformed to the shape of the groove *a'* and is adapted to enter the same. The side of the die *c* facing the end of the die *d* is conformed to the face of the latter or to the curvature or plane of the main portion *m'* of the tongue O. In the same side of the upper end of said die *c* and its attaching-shank is a vertical channel *v*, drilled from the upper end thereof part-way down, and a smaller channel extends thence down through the upper portion of the die, as shown in Fig. 10 of the drawings. In said channels slides vertically a dog *v'*, of the form of a rod, having a collar *v''* affixed to it immediately above the smaller channel, and a spiral spring *w* surrounds the rod above the collar and bears upon the latter. The lower protruding end of the said dog is bev-

eled on the side farthest from the die, for the purpose hereinafter explained.

In suitable boxes on the upper end of the frame B is journaled a shaft D, which is extended across the frame and projects from opposite sides thereof. On one of the projecting ends of the shaft is loosely mounted the driving-pulley N, and a suitable clutch L on the shaft serves to lock and unlock the pulley to and from the shaft. Central over the plunger-head C the shaft D is formed with a crank or eccentric, preferably the former, as shown, and to the crank is connected the pitman P, the lower end of which is coupled to the head C in any suitable and well-known manner, preferably by means of a screw-threaded sleeve *q*, swiveled on the end of the pitman and screwed onto a screw-threaded stem *q'*, which is connected to the head C in any suitable manner which will allow said stem to rock and conform to the oscillation of the pitman. To the other projecting end of the shaft D are rigidly secured two cams F F'.

The cam F consists of a wheel having its side oblique in relation to the axis of the wheel, and the cam F' consists of a wheel having an eccentric-track on its periphery, as shown in Fig. 6 of the drawings.

I represents a lever which is fulcrumed on a bracket *r*, secured to the side of the frame B. To the upper end of the said lever is pivoted a roller *t*, standing in a plane at right angles to the lever and held in contact with the oblique side of the cam F by a spring *r'*, drawing the upper end of the lever toward the frame B. To the lower end of the lever I is connected a pitman *g*, which is extended along the side of the die *d*, and is provided with an offset or notch *g'*, by which it is adapted to engage a shoulder or lug *l* projecting from the side of the die *d*.

A cam *j* is secured stationary to the bed A, and in the path of the free end of the pitman *g*, and has an inclined face toward the pitman. Said cam is of such a height that when the end of the pitman *g* rides upon the top thereof said pitman is raised sufficient to throw the notch *g'* out of engagement with the lug *l*. Another lever I' is pivoted to the side of the frame B, and has pivoted to its upper end a roller *t'*, by which it bears on the eccentric-track of the cam F', at the rear of the latter, as shown in Fig. 6 of the drawings. A spring *r''*, connected to the lower end of the lever and to the frame B, causes the upper end of said lever to be thrown forward, and thus hold the roller *t'* in contact with the cam.

Upon the bed A is pivoted a lever *p*, which is connected at one end to the lower end of the lever I' by a rod *p'* and at the opposite end to the feed-slide *i*. Upon the bed is also pivoted a bar *n*, which I designate the cast-off arm, for the reason hereinafter explained. Said bar or arm is connected at one end to the lower end of the lever I' by a stiff strap

or link *u*, and the opposite end or free end of said bar or arm is extended over the top of the die *a*.

The operation of our described machine is as follows: The cams F and F' are so arranged in their operative positions in relation to each other and crank of the shaft D as to cause the levers I I' and plunger-head C to operate consecutively, in the order hereinafter stated. When the machine is at rest, the head C, with its die *c*, is elevated, the die *d* is pushed back from over the die *a* by the pitman *g*, and the feed-slide *i* is drawn outward by the lever *p* sufficiently to allow a tongue-blank to be placed on the seats *h' h'*, between the inner end of the slide and adjacent side of the stationary die *a*, as represented by dotted lines in Fig. 3 of the drawings. Then by setting the machine in motion the levers I' and *p* push the slide *i* inward and cause the same to push the blank onto the top of the die *a*. The head C next descends and causes the lower end of the die *c* to press a portion of the blank into the groove *a'*, and in doing this the end portions of said blank are caused to turn upward against opposite sides of the die *c*. While this die is in the latter position the lever I pushes the pitman *g* still farther, until the end of the pitman comes in contact with and slides upon the cam *j*. This releases the lug *l* of the cam *d* from the pitman and allows said cam to be forced against the side of the die *c* by means of the spring *f*, and by the stroke of the die *d* the main portion of the blank lying between the dies *c* and *d* is bent to the shape of said dies, and imparts to said portion of the blank the curvature of the main portion *m'* of the tongue O, as illustrated in Fig. 4 of the drawings. In striking the blank the die *d* encounters the beveled protruding end of the dog *v'* and crowds the same upward out of the way of the die *d*. The die *d* next recedes from the die *c* and allows the dog *v'* to drop and bear on the back of the tongue O, which by that time is completed. Said tongue is thus retained on the die *d*, while it recedes from the die *a*, which occurs immediately after the dog has engaged the tongue, as aforesaid. The slide *i* having in the meantime been retracted by the levers I' and *p*, another blank can be placed between it and the die *a*, and in the next advancing movement of the said slide the cast-off arm *n*, moving simultaneously with the slide and in front of it, sweeps across the bottom of the raised die *c* and knocks the previously-formed tongue O off from said die and away from the machine in advance of the succeeding blank, which is pushed onto the top of the die *a* preparatory to receiving the impingements of the dies *c* and *d*, in the manner before stated.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a machine for forming clasp-tongues, the combination of the die *a*, formed with the

groove *a'*, conforming in cross-section to the short bend of the tongue to be formed, and the die *c*, having its free end conformed to the aforesaid groove and adapted to enter the same, as set forth.

2. In a machine for forming clasp-tongues, the combination of the die *a*, secured stationary to the bed of the machine and formed with a groove *a'* conforming in cross-section to the short bend of the tongue to be formed, the die *c*, arranged movably into and out of said groove and conformed thereto, and the side of said die conformed to the curvature of the main portion of the tongue, the die *d*, arranged movably to and from said side of the die *c* and having the face adjacent thereto formed correspondingly, and mechanism actuating the dies *c* and *d* consecutively, substantially as set forth.

3. In a machine for forming clasp-tongues, the combination of the die *a*, secured stationary to the bed of the machine and formed with the groove *a'*, the die *c*, reciprocating vertically into and out of said groove and conformed thereto and having its side curved corresponding to the curvature of the main portion of the tongue to be formed, the horizontal guide *e*, at right angles to the groove *a'*, the die *d*, sliding in said guide and having its end face conformed to the curved side of the die *c*, a spring forcing the die *d* toward the die *c*, and mechanism consecutively actuating the die *c* and retracting the die *d* in opposition to the spring, substantially as set forth.

4. The combination of the stationary die *a*, formed with the groove *a'*, the vertically-reciprocating die *c*, adapted to enter said groove and having its side conformed to the plane of the main portion of the tongue to be formed, the horizontal guide *e*, arranged at right angles to the aforesaid groove, the die *d*, sliding in said guide and having its end face conformed to the aforesaid side of the die *c*, the spring *f*, forcing the die *d* toward the die *c*, a shoulder on the die *d*, the pitman *g*, arranged movably in opposition to the aforesaid spring and adapted to engage and release the shoulder of the die *d*, a throw-off adapted to release the pitman from the said shoulder, and mechanism actuating consecutively the die *c* and pitman, substantially as described and shown.

5. The combination of the stationary die *a*, formed with the groove *a'*, and seats *b b* at opposite sides of said groove, the guide *h*, in line with said groove and formed with coinciding seats *h' h'*, the slide *i* in said guide, the vertically-reciprocating die *c*, adapted to enter the groove *a'* and having its side conformed to the plane of the main portion of

the tongue to be formed, the horizontally-reciprocating die *d*, having the end face adjacent to the aforesaid side of the die *c* conformed thereto, the spring *f* forcing the die *d* toward the die *c*, the shoulder *l* on the die *d*, the pitman *g*, adapted to engage and release said shoulder, the throw-off cam *j* in the path of the pitman, and mechanism actuating consecutively the slide *i*, die *c*, and pitman *g*, substantially as described and shown.

6. In combination with the stationary die *a*, vertically-reciprocating die *c*, and horizontally-reciprocating die *d*, the cast-off arm *n*, and mechanism actuating consecutively the aforesaid dies and cast-off arm, substantially as set forth.

7. In combination with the stationary die *a*, feed-slide *i*, vertically-reciprocating die *c*, horizontally-reciprocating die *d*, and cast-off arm *n*, mechanism actuating consecutively the aforesaid slide and dies, and mechanism actuating the slide and cast-off arm simultaneously, substantially as set forth.

8. In combination with the bed *A*, upright frame *B*, and vertical guides *o o* on said frame, the head *C*, sliding in said guides, the crank-shaft *D*, the pitman *P*, connecting the head *C* with the crank-shaft, the cams *F* and *F'*, attached to said shaft, the die *c*, attached to the head *C*, the die *a*, secured to the bed *A*, the guide *e* in the bed at right angles to the die *a*, the guide *h* in the bed in line with the said die, the die *d*, sliding in the guide *e*, the feed-slide *i*, mounted on the guide *h*, the lug *l* on the die *d*, the spring *f* forcing said die toward the die *c*, the lever *I*, actuated by the cam *F*, the pitman *g*, connected to said lever and adapted to engage and release the lug *l*, the cam *j* in the path of said pitman, the cast-off arm *n*, arranged movably across the top of the die *a*, the lever *p*, pivoted to the bed and connected with the feed-slide, and the lever *I'*, transmitting motion from the cam *F'* to the aforesaid cast-off arm and to the lever *p*, substantially as described and shown.

9. In combination with the horizontally-reciprocating die *d*, the vertically-reciprocating die *c*, the vertically-movable dog *v'*, connected to the latter die and having its lower end beveled and in the path of the die *d*, substantially as and for the purpose set forth.

In testimony whereof we have hereunto signed our names this 18th day of September, 1889.

STEPHEN T. HISLEY. [L. S.]

JOHN A. MUNDY. [L. S.]

Witnesses:

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A. F. WALZ.