

No. 665,331.

Patented Jan. 1, 1901.

A. J. LANGELIER.  
MACHINE FOR SWAGING HOLLOW BUTTON BLANKS, &c.

(Application filed Apr. 23, 1900.)

(No Model.)

3 Sheets—Sheet 1.

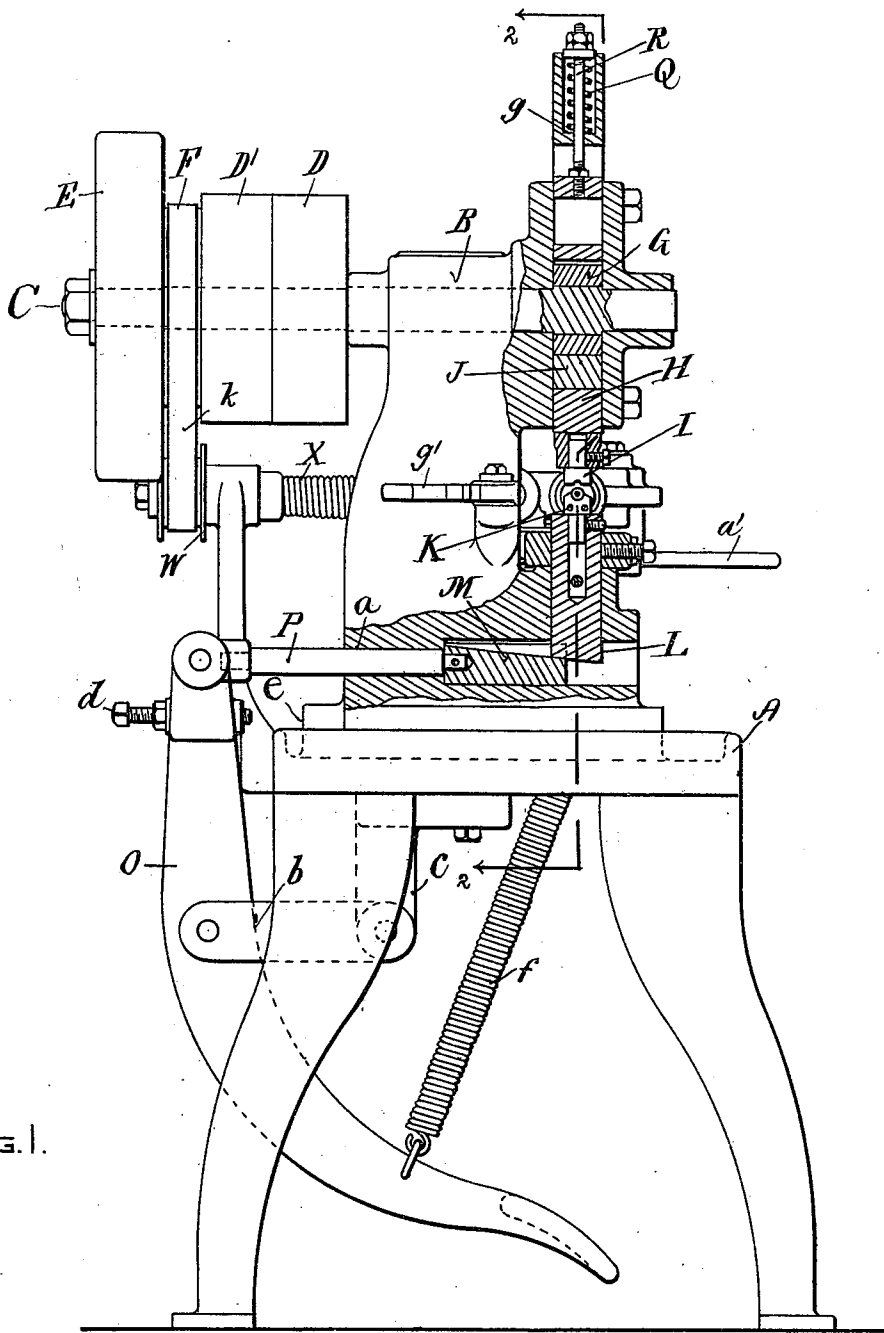


FIG. 1.

WITNESSES:

*Harry J. Garceau.*  
*Andrew J. Pitzer*

INVENTOR:

*Antoine J. Langelier*  
BY *S. Scholfield*  
ATTY.

No. 665,331.

Patented Jan. 1, 1901.

A. J. LANGELIER.

MACHINE FOR SWAGING HOLLOW BUTTON BLANKS, &c.

(Application filed Apr. 23, 1900.)

(No Model.)

3 Sheets—Sheet 2.

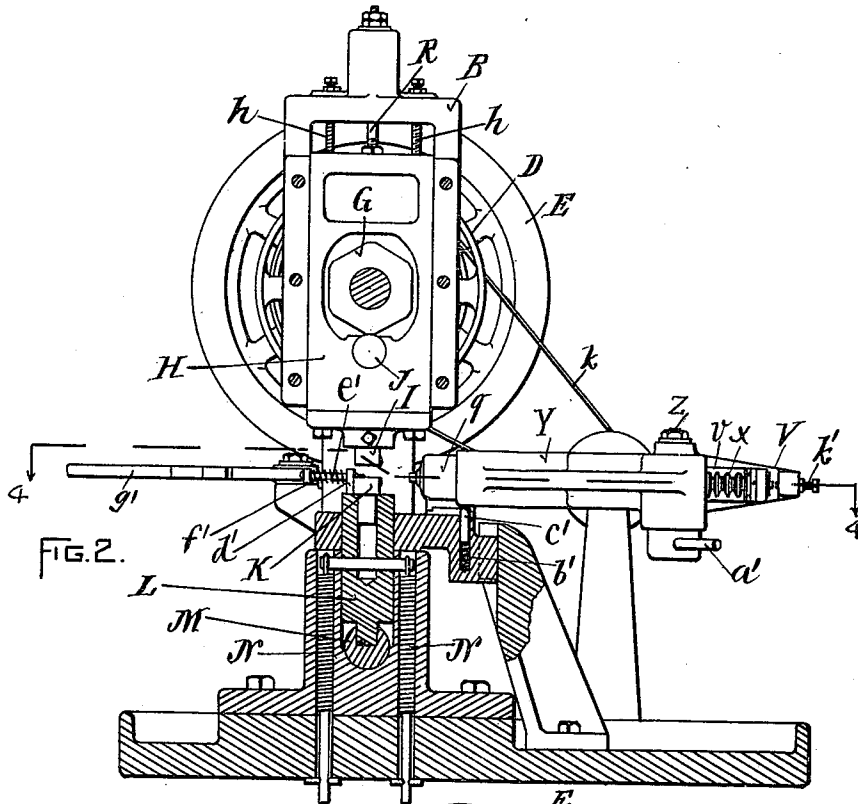


FIG. 2.

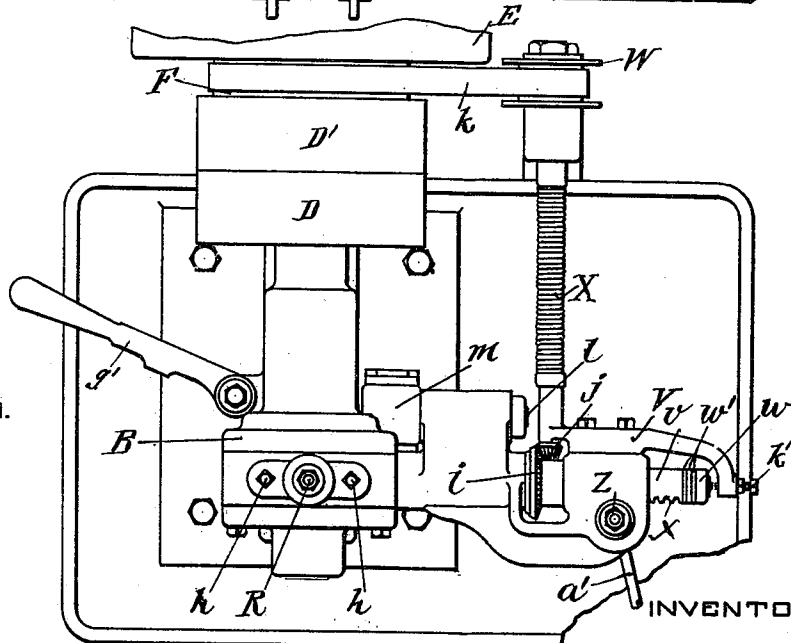


FIG. 3.

WITNESSES:

*Harry J. Garceau.*  
*Andrew J. Pritchard*

INVENTOR:

*Antoine G. Langelier*  
 BY *S. Scholfield*  
 ATTY.

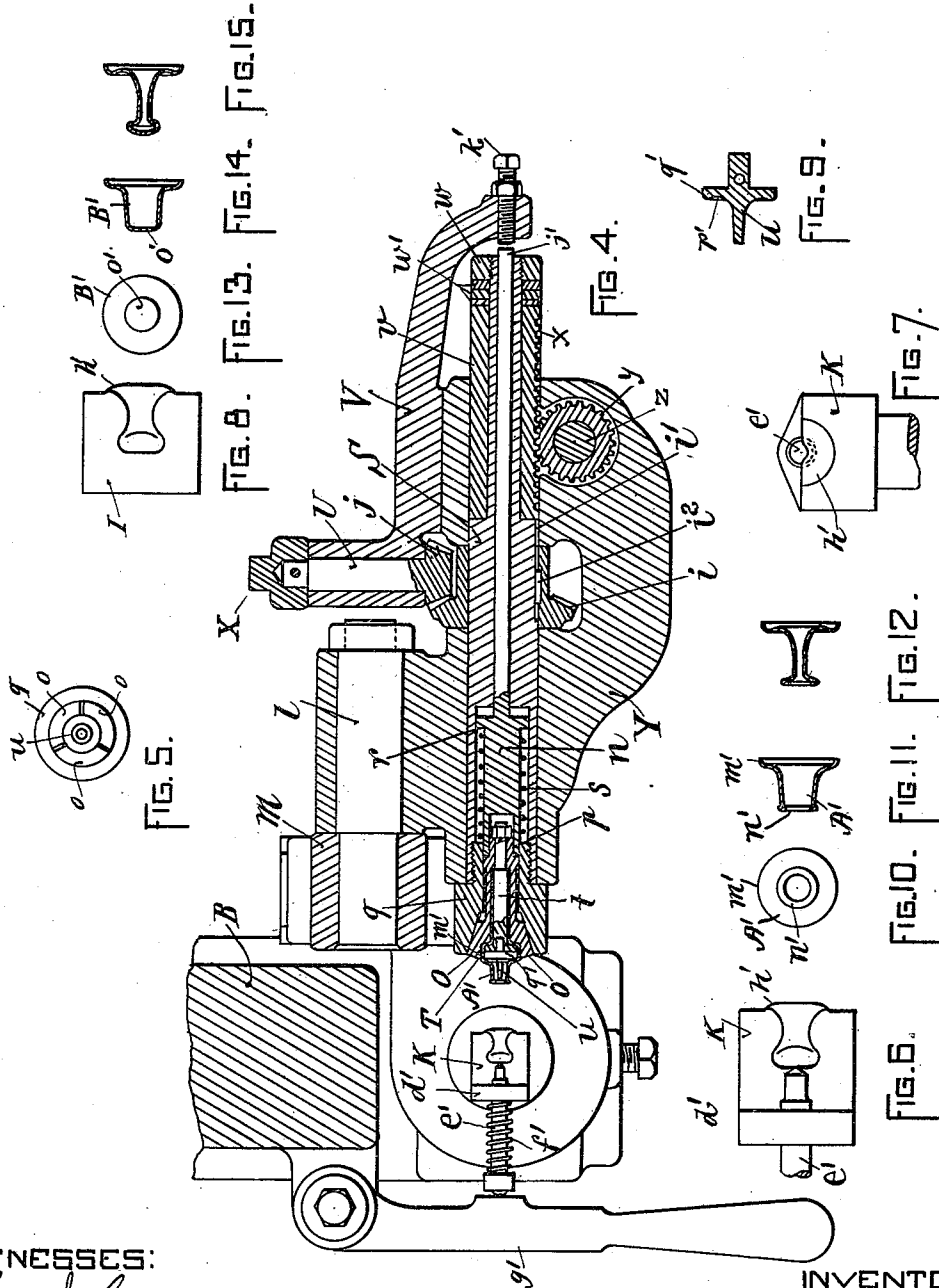
A. J. LANGELIER.

MACHINE FOR SWAGING HOLLOW BUTTON BLANKS, &c.

(Application filed Apr. 23, 1900.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES:

*Henry J. Garceau*  
*Andrew J. Pitzer*

INVENTOR

*Antoine J. Langelier*

BY

*S. Scholfield*

ATTY

# UNITED STATES PATENT OFFICE.

ANTOINE J. LANGELIER, OF PROVIDENCE, RHODE ISLAND.

## MACHINE FOR SWAGING HOLLOW BUTTON-BLANKS, &c.

SPECIFICATION forming part of Letters Patent No. 665,331, dated January 1, 1901.

Application filed April 23, 1900. Serial No. 14,040. (No model.)

To all whom it may concern:

Be it known that I, ANTOINE J. LANGELIER, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machines for Swaging Hollow Button-Blanks or Similar Articles of Sheet Metal, of which the following is a specification.

My invention consists in the employment of a rotary chuck for holding the blank from which the button or other article is to be formed in connection with the hammering and anvil dies, and also with a presser-spindle, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents a side elevation and partial section of a swaging-machine embodying my invention. Fig. 2 represents an enlarged section taken in the line 2 2 of Fig. 1. Fig. 3 represents an enlarged section taken in the line 4 4 of Fig. 2. Fig. 4 represents a horizontal section taken in the line 4 4 of Fig. 2. Fig. 5 represents an end view of the chuck-spindle. Fig. 6 represents an enlarged top view of the anvil-die. Fig. 7 represents a side view of the anvil-die. Fig. 8 represents a face view of the hammering-die. Fig. 9 represents the removable mandrel of the holding-spindle of the chuck. Fig. 10 represents an end view of a struck-up blank of sheet metal from which a collar-button post is to be formed. Fig. 11 represents an axial section of the same. Fig. 12 represents an axial section of the completed button-post having an opening in its head which is to be covered by a separate piece in the completed button. Fig. 13 represents a cup-formed blank from which a collar-button shank with a closed head is to be swaged. Fig. 14 represents an axial section of the same. Fig. 15 represents an axial section of the completed button-shank with a closed head.

In the drawings, A represents the bed or table upon which the machine is placed, and B the head to which the working parts are connected.

Upon the rear end of the shaft C are placed the fast and loose pulleys D D', the balance-wheel E, and the pulley F, and upon the forward end of the shaft C is secured the cam G, by means of which the vertically-reciprocated sliding head H, which carries the hammer-

die I, is actuated, the said cam being caused to operate upon the hardened antifriction-roller J. The anvil-die K is held in the sliding spindle L, which is actuated for upward movement by means of the sliding wedge M and for downward movement by means of the oppositely-arranged spiral springs N N, the wedge M being brought forward to raise the spindle L by means of the swinging pedal-lever O, to the upper end of which the wedge M is connected by means of the bar P, which slides in the bearing a, formed in the base of the head B, and the pedal-lever O is fulcrumed by means of the link b, which is connected to the pendent bracket c, the limit of the forward movement of the upper end of the lever O being made changeable as required by means of the adjusting-screw d, the inner end of which strikes against the shoulder e of the head B, and the backward movement of the upper end of the lever O is effected by means of the spiral spring f. The sliding head H, which carries the hammering-die I, is actuated in the upward direction against the downward action of the cam G by means of the spiral spring Q, which is held upon the stem R of the sliding head and bears against the shoulder g of the head B, the upward movement of the said sliding head H being limited as required by means of the adjusting-screws h h.

The chuck-spindle S is held in a bearing-frame Y, pivoted upon the horizontal stud l, which projects from a stand m at the side of the head B and is arranged for a limited up-and-down movement. The chuck-spindle S is provided with a groove i', and the bevel-gear i, by means of which the spindle is rotated, is secured to the spindle S by means of the spline i'', which loosely fits the groove i', so that the said spindle may slide back and forth through the said gear, the gear i being driven by means of the pinion j, secured to the rigid shaft U, which is held in the bearing-bracket V, and connection is made from the shaft U to the pulley W by means of the flexible shaft X, the pulley W being driven from the pulley F by means of the belt k. The chuck-spindle S is made hollow and provided with the central spindle n, to the forward end of which are secured the conically-beveled split jaws o o o by means of a suit-

able screw-thread at *p*, the said split jaws being inclosed in the conically-recessed head *q*, which is screwed into the forward end of the chuck-spindle S, and between the inner end of the head *q* and the shoulder *r*, upon the central spindle *n*, is placed the spiral spring *s*, which serves to effect the closure of the split jaws *o o o* of the chuck T upon the edge *q'* of the mandrel *u*, which is secured to the forward end of the holding-spindle *t* and serves to support the blank when under the action of the dies. To the rear end of the chuck-spindle S is secured the loose sleeve *v* by means of the nut *w* and washers *w'*, the said sleeve being provided with a rack *x*, adapted for engagement with the teeth of the gear *y* upon the upright shaft *z*, which at its lower end is provided with the handle *a'*, by means of which the chuck-spindle may be operated back and forth by hand, as required in the operation of the machine. The bearing-frame Y for the chuck-spindle is supported in a yielding manner by means of the spiral spring *b'* and the pin *c'*, which bears against the underside of the frame Y. The chuck-spindle S will thus be allowed to assume a central position when the blank held by the chuck is subjected to the action of the dies. The anvil-die K is provided at its side with the bearing-piece *d'*, through which the presser-spindle *e'* passes, the said presser-spindle being retained in its backward position by means of the spiral spring *f'* and carried forward for operation upon the blank by means of the hand-lever *g'*. The hammering-die I and the anvil-die K are each provided with a projecting cheek *h'*, which serves to impart a hollowed form to the inner side of the shoe of the button, as shown in Figs. 12 and 15.

When the machine is in operation and the chuck-spindle S is carried back by means of the rack *x*, gear *y*, and handle *a'*, so that the end *j'* of the spindle *n* strikes the inner end of the screw *k'*, the blank A' will be released from the jaws of the chuck T and may be removed therefrom and another blank inserted in its stead, and then upon bringing the spindle forward by means of the hand-lever *a'* the jaws of the chuck will become tightened upon the inclosed rim *m'* of the blank, and then upon bringing the chuck-spindle forward and raising the anvil-die by means of the pedal-lever O and wedge M the operation of swaging the blank will be proceeded with until the form shown in Fig. 12 is imparted to the post portion of the blank, the presser-spindle *e'* being then brought forward by means of the hand-lever *g'* to properly form the head end *n'* of the blank, and by withdrawing the anvil-die and the chuck-spindle as before the finished blank may be removed from the jaws of the chuck and another blank inserted.

Another form of blank is shown in Figs.

13, 14, and 15, in which an integral closed head *o'* is formed upon the blank B' instead of the open head of Fig. 12, and the cheeks *h'* of the dies, in connection with the annularly-hollowed form of the face *p'* of the mandrel *u*, will serve to impart the desired hollowed form to the shoe of the button-post, the rotating chuck-spindle being brought forward to press the said shoe against the cheeks *h'* of the dies, and by means of the supporting-mandrel *u* the shape and size of the button-post may be made uniform.

I claim as my invention—

1. In a swaging-machine, the combination of the reciprocating hammer-die, and the adjustable anvil-die, with the chuck-spindle, the pivoted bearing-frame for holding the chuck-spindle, and yielding means for supporting the pivoted bearing-frame whereby the chuck will be allowed to assume a central position, when the blank is subjected to the action of the dies, substantially as described.

2. In a swaging-machine, the combination of the reciprocating hammer-die, and the adjustable anvil-die, with the rotary chuck-spindle, the pivoted bearing-frame for holding the chuck-spindle, yielding means for supporting the bearing-frame, and means for sliding the chuck-spindle in the pivoted bearing-frame, substantially as described.

3. In a swaging-machine, the combination of the reciprocating hammer-die, and the adjustable anvil-die, with the hollow chuck-spindle, the pivoted bearing-frame for holding the chuck-spindle, yielding means for supporting the bearing-frame, means for sliding the chuck-spindle back and forth in the bearing-frame, the central spindle within the bore of the chuck-spindle the chuck, the mandrel, and the spring for effecting the closure of the jaws of the chuck upon the edge of the mandrel, substantially as described.

4. In a swaging-machine, the combination of the reciprocating hammer-die the adjustable anvil-die, and the rotary chuck, with the presser-spindle for operating upon the forward end of the blank which is rotated between the dies, and means for bringing the presser-spindle forward to act upon the blank, substantially as described.

5. In a swaging-machine, the combination of the rotary chuck, and the hammering and anvil dies, provided with the projecting cheeks, with the mandrel provided with a hollowed face, for imparting a hollowed form to the shoe portion of the blank, substantially as described.

ANTOINE J. LANGELIER.

Witnesses:

SOCRATES SCHOLFIELD,  
IDA M. PICARD.