

(No Model.)

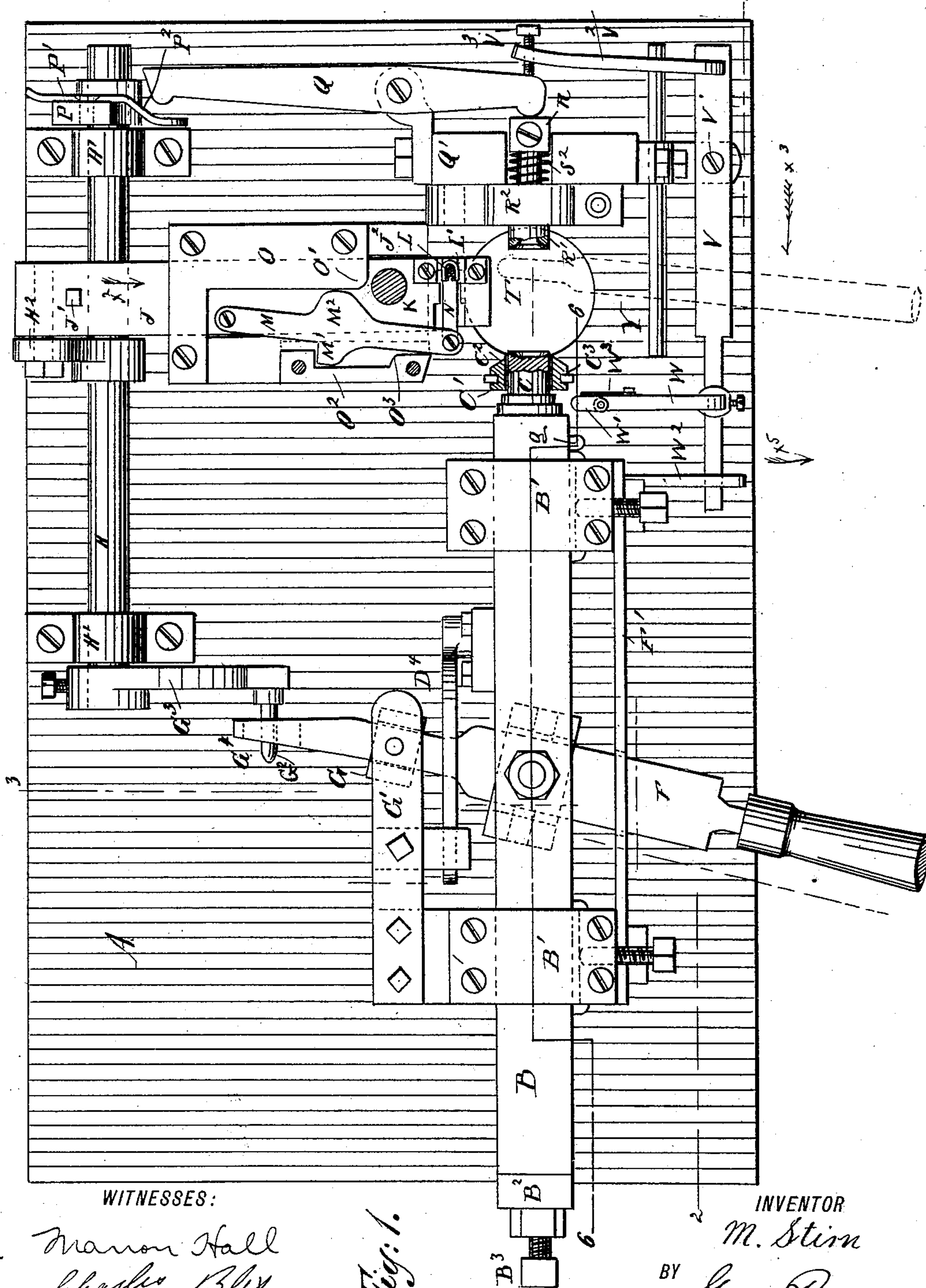
3 Sheets—Sheet 1.

M. STIRN.

MACHINE FOR MAKING BUTTONS FROM PLASTIC MATERIAL.

No. 482,144.

Patented Sept. 6, 1892.



WITNESSES:

Manon Hall
Charles Bliss

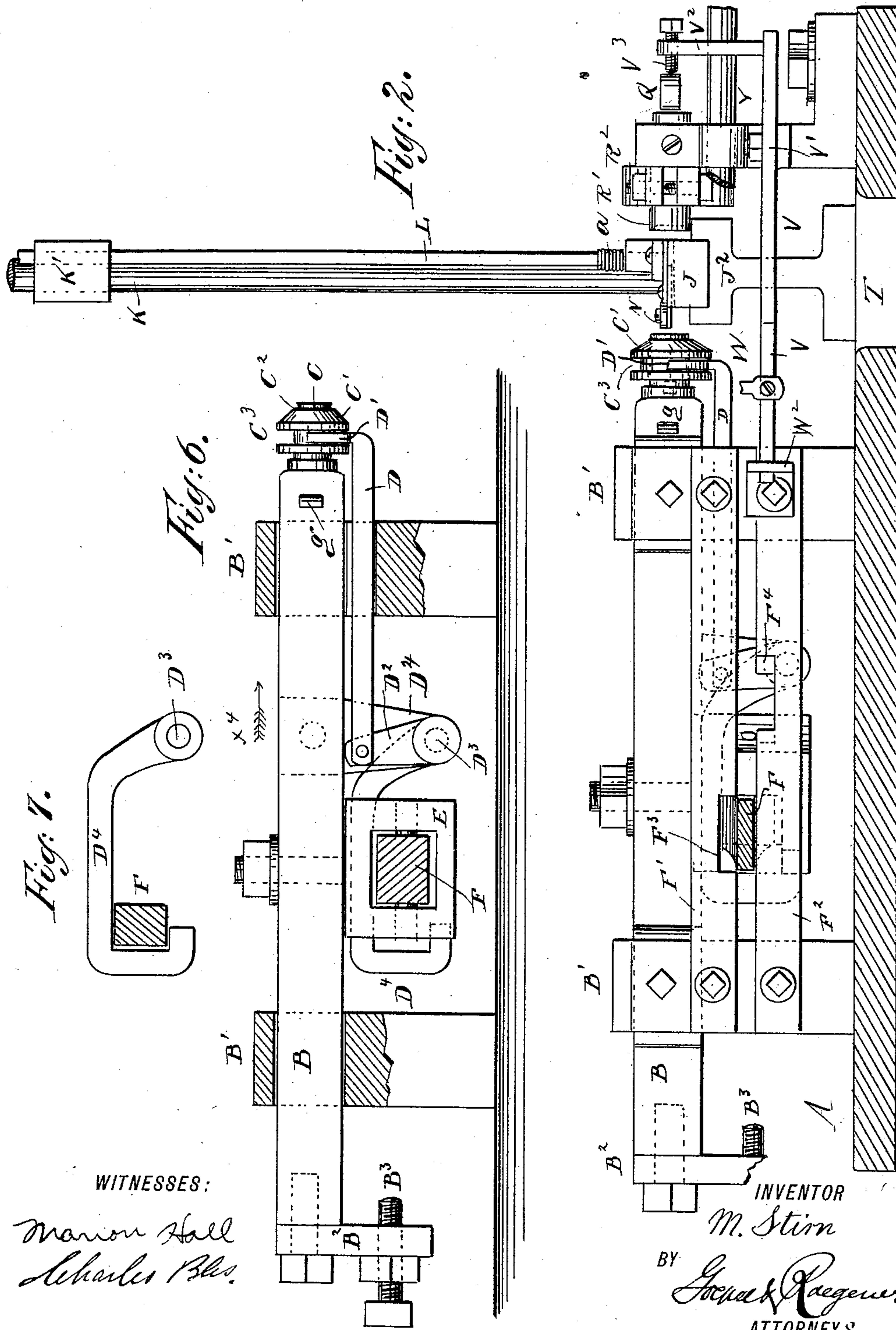
INVENTOR

M. Stern

BY

Y
George Raegner
 ATTORNEYS

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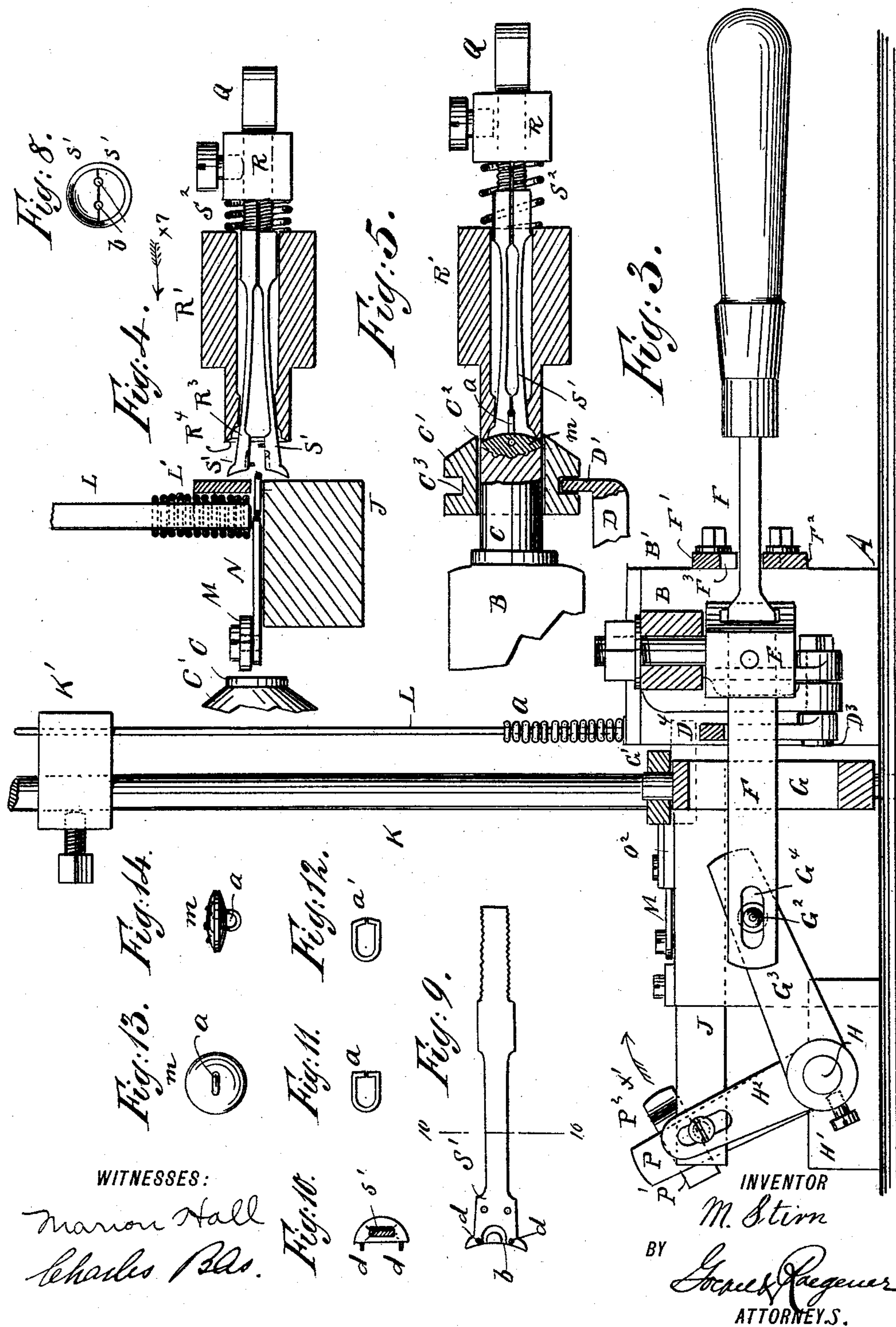
WITNESSES:
Marion Hall
Charles Bles.

INVENTOR
M. Stirn
BY
G. & R. Regener
ATTORNEYS

3 Sheets—Sheet 3.

MACHINE FOR MAKING BUTTONS FROM PLASTIC MATERIAL.

Patented Sept. 6, 1892.



UNITED STATES PATENT OFFICE.

MAX STIRN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO LEO STIRN,
OF SAME PLACE.

MACHINE FOR MAKING BUTTONS FROM PLASTIC MATERIAL.

SPECIFICATION forming part of Letters Patent No. 482,144, dated September 6, 1892.

Application filed November 6, 1891. Serial No. 411,046. (No model.)

To all whom it may concern:

Be it known that I, MAX STIRN, a citizen of the United States, and a resident of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Machines for Making Buttons from Plastic Material, of which the following is a specification.

This invention relates to a new and improved machine for making glass or composition buttons; and the object of my invention is to produce a machine of this kind which is so constructed as to automatically deliver and hold the eyelet and introduce the same in the button in the operation of shaping and molding said button.

The invention consists in a machine for making buttons from plastic materials, constructed with a slide carrying part of the mold, a sliding eyelet carrier and feeder, and spring-jaws in one of the molds for holding the eyelet while single-molding the button, and a lever for operating the several parts.

The invention also consists in the construction and combination of parts and details, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved machine for making buttons, parts being shown in horizontal section. Fig. 2 is a front view of the same, parts being shown in longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a vertical transverse sectional view of the machine on the line 3 3 of Fig. 1. Fig. 4 is a vertical longitudinal sectional view on the line 4 4 of Fig. 1, showing the eyelet-holding jaws open. Fig. 5 is a similar view showing the jaws closed and the sliding sleeve pushed forward. Fig. 6 is a longitudinal sectional view on the line 6 6 of Fig. 1. Fig. 7 is a detail view of the hook-lever. Fig. 8 is an end view of the eyelet-holding jaws. Fig. 9 is an inside view of one of the jaws. Fig. 10 is a transverse sectional view on the line 10 10 of Fig. 9. Figs. 11 and 12 are views of the eyelets. Fig. 13 is a rear view, and Fig. 14 a side view, of the button made on my improved machine.

Similar letters of reference indicate corresponding parts.

The entire machine rests upon the base-

plate A, and from said base-plate two standards B' B' project upward, and on the same a slide B is guided to move horizontally, said slide B being provided at one end with a downwardly-projecting arm B², in which an adjustable stop or screw B³ is held, which stop can strike against one of the standards and serves to limit the throw of said slide B. On the opposite end of the slide a hub C is formed, and in the end surface of said hub the solid half of the mold for the button is formed. A collar C', having a cutting-edge C², is mounted to slide on said hub C, and said collar is provided with the angular groove C³, adapted to receive the prongs of a fork D', formed on one end of a rod D, guided in one of the standards B' and connected with the crank-arm D² of a rocking shaft D³, mounted in the lug D⁴ of the slide B, the purpose of which will be described hereinafter. The box E, arranged below the slide B, is pivoted to the same, so as to turn on said slide B in the horizontal plane. The handle-lever F, passing through the said box E, is pivoted in the same by lateral pivots, so as to adapt said handle-lever to swing laterally and vertically, which lever is provided with a suitable handle projecting beyond the base-plate, as shown in Fig. 1. The lever F is guided between the adjacent edges of two horizontal bars F' F², fastened to the fronts of the standards B', the bar F' being pivoted with a notch F³ in its bottom edge and the bar F² to a notch F⁴ in its upper edge, said notches being separated a short distance from each other and of sufficient size and depth to receive the lever F. Said lever F passes through a vertically-slotted guide G, pivoted vertically in the bottom plate A and in the bridge G' of one of the bearings B', said guide-piece G forming a fulcrum for the horizontal swinging movements of lever F. The said lever F is provided at its inner end with the longitudinal slot G⁴, adapted to receive the pin G², projecting laterally from the crank-arm G³ on one end of a rocking shaft H, mounted in bearings H' of the base-plate. Said rocking shaft is provided with a crank-arm H², pivotally connected with a slide J, having a stop J' on its pivoted end and guided horizontally in the standard J² on the base-plate. From said slide

A rod K projects upward and carries a block K' and adapted to be locked at different elevations on the rod K by means of a binding-screw.

5 A short distance from the vertical rod K a vertical rod L, approximately U-shaped in cross-section, is arranged, the upper end of said rod L being held in the block K'. A number of eyelets a or a' , Figs. 11 and 12, are
10 mounted on said rod L, as shown, one eyelet resting upon the other. The lower end of the rod L is a short distance from the upper surface of the slide J, as shown in Fig. 4, and at one side of said lower end of the rod L a
15 guard-plate L' is arranged, against which the lower eyelets on the rod L rest, said plate L' being parallel with the edge of the slide J. A cam-lever M, having cam projections M' and M², is pivoted on the upper surface of the
20 slide J, and one end of the same is pivotally connected with the pusher N, suitably guided in a transverse groove in the upper surface of the slide J. On the upper surface of the standard J² the cam-guide O, provided with
25 the shoulder O', and the cam-guide O², provided with the shoulder O³ are fixed and are adapted to act on the cam projections M' and M², in a manner that will be set forth hereinafter. The rocking shaft H is also pro-
30 vided with an arm P, which is provided with a cam-piece P' having a bevel P², which is adapted to act on the end of the lever Q, pivoted to the standard Q' of the base-plate, the opposite end of said lever Q being adapted to act
35 on a block R, in which are screwed two spring-jaws S' S', guided in a sleeve R', held in the standard R² of the base-plate A, the end of said sleeve R' having a recess R³ for receiving the heads of the jaws and the annular
40 recess R⁴, forming the other half of the mold. A helical spring S² is arranged between the block R and the end of the guide-sleeve R' and serves to press the block R to the right and draw the spring-jaws S' into the sleeve R', so as to
45 keep the clutch formed by said jaws closed. Each spring-jaw S' is provided at its free end with a U-shaped recess b for receiving the closed end of the eyelet a or a' and with two guide-pins d , adapted to pass into corre-
50 sponding notches of the other jaw. The end parts of the jaws are rounded and shaped to conform to the under side of the button m .

Between the hub C and the guide-sleeve R' an aperture T is formed in the base-plate,
55 through which the completed buttons can drop.

The lever V is pivoted at V' on a standard on the base-plate of the machine to swing horizontally, and is provided at one end with
60 an arm V², having a set screw V³ resting against the front end of the lever Q. On the opposite end of the lever V an arm W is held adjustable and is provided at its free end with a pivoted trigger W', that can swing in
65 one direction only, and is held in line with the arm W by the spring W³, secured to said arm and bearing on the trigger. On the front of

the slide B a projection g is formed that can act on the trigger W'.

W² is a guide for the pivoted lever V, and
70 Y is a rest for the rod of glass or other material from which the buttons are to be made.

The operation is as follows: Assume that the parts are in the positions shown in Fig. 1 and a button is to be made and the lever F is
75 pressed upward at its outer end, so as to cause the shaft H to swing in the direction of the arrow X', Fig. 3, whereby the slide J is moved in the direction of the arrow X², Fig. 1, and thereby the rod L, carrying eyelets, is brought
80 into position directly opposite the center of the clutch formed of the jaws S'. At the same time that the slide J has been moved forward the bevel P² of the cam-plate P' on the arm P of the shaft H has pressed the rear
85 end of the lever Q to the right, whereby the front end of said lever is pressed to the left, and acting on the block R has pressed the jaws S' of the clutch in the direction of the arrow X³, Fig. 1, whereby the said jaws are
90 opened. As the slide J continues to move in the direction of the arrow X², Fig. 1, its cam projection M' strikes against the shoulder O³ of the cam-guide O², whereby the end of the cam-lever M and the pusher N on the same are
95 moved in the inverse direction of the arrow X³, Fig. 1, and the lowest eyelet a or a' of the row of eyelets on the rod L is pushed from under the lower end of the rod L in between the opened ends of the jaws S'. The handle
100 end of the lever F is now pressed downward, whereby the arms H² and P are swung in the inverse direction of the arrow X', Fig. 3, and the cam P is withdrawn from the end of the lever Q, permitting the spring S² to pull the
105 jaws S' in the inverse direction of the arrow X', whereby the said jaws are closed, the eyelet a being held between them. Said jaws, with groove R⁴, form that surface of the mold that shapes the under side of the button m ,
110 as is shown in Fig. 5. At the same time that the jaws are closed the slide J moves in the inverse direction of the arrow X², Fig. 1, and the cam projection M² of the cam-lever M strikes against the shoulder O' of the guide
115 O, whereby the said cam-lever and the pusher N on the same are moved in the direction of the arrow X³, whereby the pusher N is withdrawn from below the lower end of the rod L, thus permitting the eyelets to drop a dis-
120 tance equal to the thickness of one eyelet. An eyelet now again rests on the slide J below the lower end of the rod L, ready for the next operation. After the eyelet has thus been introduced and locked in the jaws by
125 moving the handle end of the lever F up and down the end of the heated glass bar (shown in dotted lines in Fig. 1) is placed adjacent to the guide-sleeve R', and now the lever F is swung in an inverse direction of the arrow
130 X³, whereby its inner end is disengaged from the pin G² on the crank-arm G³ as the said pin passes out of the slot G⁴ in the inner end of the handle-lever F. By moving the han-

dle-lever F in the inverse direction of the arrow X³ the slide B is moved correspondingly, and the hub C is pressed against the end of the piece of heated glass held adjacent to the guide-sleeve R', and thereby a certain quantity of soft glass is pressed into the mold formed by the end of the mold-hub C and the end of the guide-sleeve R'. A part of said glass projects beyond the edges of the mold and must be trimmed off. The lever F, being shifted in the manner described is directly over the notch F⁴ in the bottom guide-bar F², and if it is now pressed downward its inner end is moved upward and it acts on the upper part of the hook-arm D⁴, moving the same upward, whereby the rock-shaft D³ is turned in such a manner as to move the sliding bar in the direction of the arrow X⁴, Fig. 6, whereby the collar C' is moved in a like direction and passes over the edge of the molded buttons and trims off edges of the same, as shown in Fig. 5. The outer end of the lever F is then raised again, whereby the collar C is withdrawn, as the inner end of the lever F' now acts on the bottom shank of the hook-arm D⁴ and presses the same downward, thus moving the connecting-bar D in the inverse direction of the arrow X⁴. The lever F is then moved in the direction of the arrow X³, so as to be below the notch F³ in the upper guiding-bar, whereby the pin G² of the crank-arm G³ is again brought into the slot G⁴ in the inner end of the lever F, thus adjusting the parts for the next operation. As the slide B moves in the inverse direction of the arrow X³ to mold the button the projection g strikes the trigger W' on the arm W and swings the trigger to one side without affecting the lever V; but when the slide B is moved in the direction of the arrow X³ the projection g strikes the trigger W' and swings it and the arm W to the left, whereby the lever V is turned on its pivot in the direction of the arrow X⁵, causing it to press the front end of the lever Q in the direction of the arrow X³, whereby the clutch is opened, thus permitting the finished button to drop out and through the opening T in the base-plate.

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

1. A machine for making buttons from plastic material, constructed with a slide on the end of which one part of the mold is formed, and a handle-lever for shifting said slide, which lever is pivoted in said slide to swing laterally and is also pivoted in said slide to swing vertically, substantially as set forth.

2. In a machine for making buttons from plastic material, the combination, with a slide on the end of which one part of the mold is formed, of a handle-lever mounted to swing laterally and vertically on said slide, a rocking shaft operated from said handle-lever, an eyelet-feeder operated from said rocking shaft, and a lever for closing the mold, also oper-

ated from said rocking shaft, substantially as set forth.

3. In a machine for making buttons from plastic material, the combination, with a mold composed of two sections, of a slide, a handle-lever mounted to swing laterally and vertically on said slide, a rocking shaft operated from said handle-lever, a sliding plate operated from said rocking shaft, an eyelet-holder on said sliding plate, an eyelet-pusher pivoted on said sliding plate, and a lever for closing the mold, which lever is also operated from said rocking shaft, substantially as set forth.

4. In a machine for making buttons from plastic material, the combination, with a mold composed of two sections, of a slide on the end of which one part of the mold is formed, a handle-lever mounted on the slide to swing vertically and laterally, a rocking shaft operated from said handle-lever, a sliding plate connected with the rocking shaft and carrying an eyelet-support, an eyelet-pusher pivoted on said slide, fixed cams acting on the eyelet-pusher, and a lever for closing the mold, which lever is also operated from the above-mentioned rocking shaft, substantially as set forth.

5. In a machine for making buttons from plastic material, the combination, with a slide on the end of which part of the mold is formed, of a lever pivoted in said slide, a rocking shaft operated from said lever, a cam-lever operated from the rocking shaft, and an open section of the mold, which open section is provided with two gripping-jaws for holding an eyelet, said open section of the mold being acted upon by the cam-lever that receives motion from the rocking shaft, substantially as set forth.

6. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of a sliding clearing-collar on said mold-section, a rocking shaft, a bar connected with said rocking shaft and with the sliding clearing-collar, a hook-arm on said shaft, and a handle-lever pivoted on the slide, which handle-lever is embraced by the hook-arm, substantially as set forth.

7. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of sliding spring-jaws in the opposite part of the section and a trigger-lever operated from the slide and serving to force outward the spring-jaws in the mold-section, substantially as set forth.

8. In a machine for making buttons from plastic material, the combination, with a slide on which one mold-section is formed, of an opposite mold-section constructed with two spring-jaws, a pivoted lever having an arm adapted to act on the spring-jaws of said mold-section, a projection on the slide, adapted to operate said lever, and an intermediate

device interposed between said lever and the spring-jaws, so as to move the spring-jaws forward and permit them to separate, substantially as set forth.

5 9. In a machine for making buttons from plastic material, the combination, with a slide, of a handle-lever pivoted to said slide to swing laterally and vertically, guide-bars between which the lever can swing laterally, and
10 notches in the edges of said guide-bars to permit the vertical movements of said lever, substantially as set forth.

10. In a machine for making buttons from plastic material, the combination, with a slide,
15 of a handle-lever pivoted in the same to swing laterally and vertically and provided at its rear end with a slot, guide-bars for guiding the handle-lever in its lateral movements, which guide-bars are provided with notches
20 in the edges that permit the vertical movements, a rocking shaft provided with an arm having a pin adapted to enter the slot in the end of the handle-lever, and eyelet-feeding and mold-closing devices operated from the
25 rocking shaft, substantially as set forth.

11. In a machine for making buttons from plastic material, the combination, with a slide, of a handle-lever pivoted in the same to swing laterally and vertically, a slotted pivot
30 through which the handle-lever passes, a rocking shaft provided with an arm having a pin that can enter a slot in the rear end of the handle-lever, and an eyelet-feeding and mold-

closing device operated from the rock-shaft, substantially as set forth. 35

12. In a machine for making buttons from plastic material, the combination, with a slide on which one section of a mold is formed, of a sliding collar on said mold-section, an eyelet-feeder, an additional mold-section, and
40 a handle-lever pivoted to swing vertically and laterally, which handle-lever operates the sliding collar on the mold-section connected with the slide and also operates the eyelet-feeder and the additional mold-section, sub-
45 stantially as set forth.

13. In a machine for making buttons from plastic material, the combination, with a slide, of an eyelet-pusher, a rod having its lower end directly above the pusher, and means for
50 holding said rod, substantially as set forth.

14. In a machine for making buttons from plastic material, the combination, with a mold, of a slide, a rod supported on said slide, an eyelet-pusher on the slide, and an additional
55 rod for holding a series of eyelets and supported from the above-mentioned rod to have its lower end directly above the pusher, substantially as set forth.

In testimony that I claim the foregoing as
60 my invention I have signed my name in presence of two subscribing witnesses.

MAX STIRN.

Witnesses:

OSCAR F. GUNZ,

CHARLES SCHROEDER.