(No Model.)

J. C. SCHOTT.

BUTTON MAKING MACHINE.

No. 361,088. Patented Apr. 12, 1887.

Fig. 1.

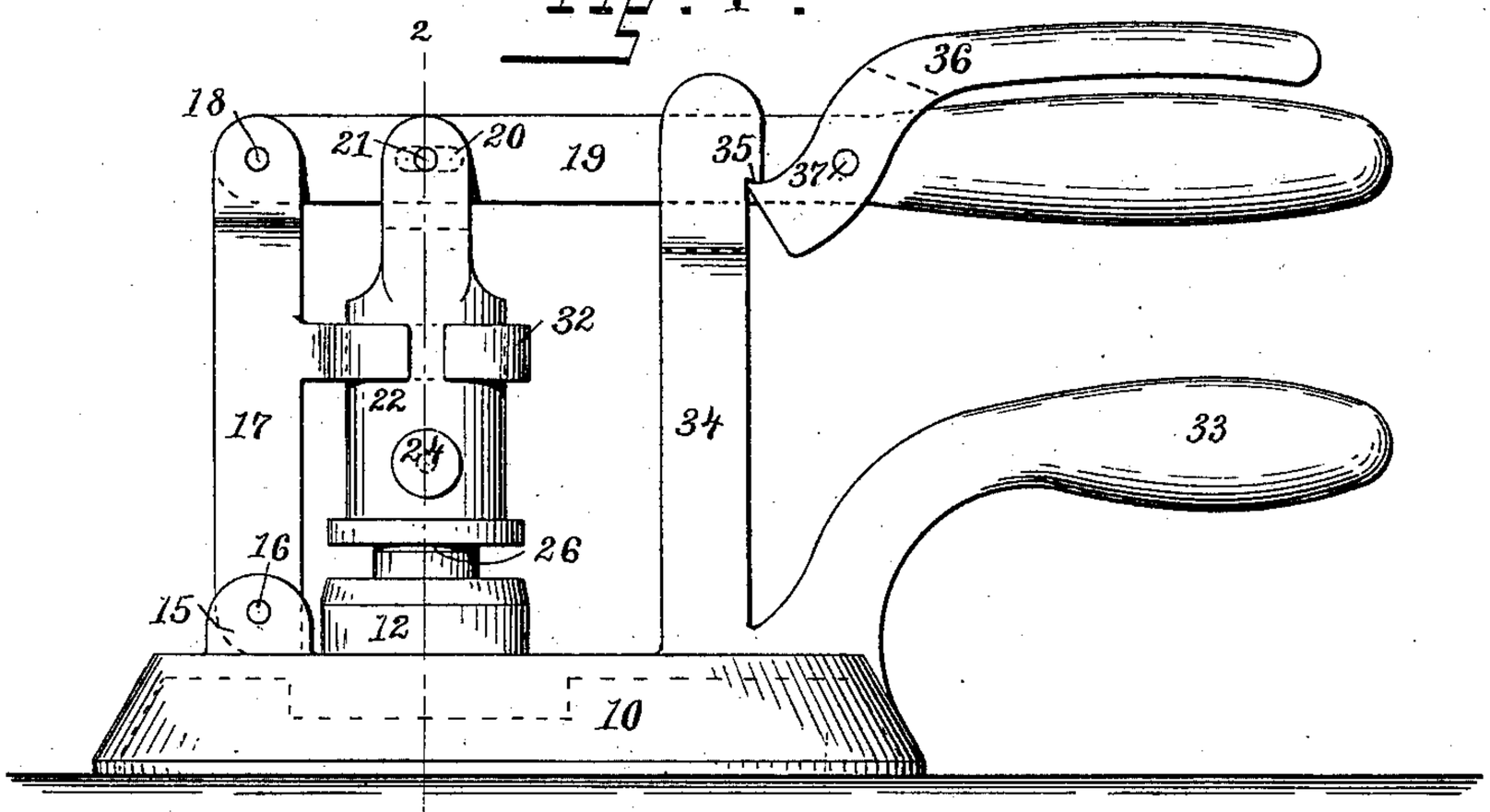


Fig. 2.

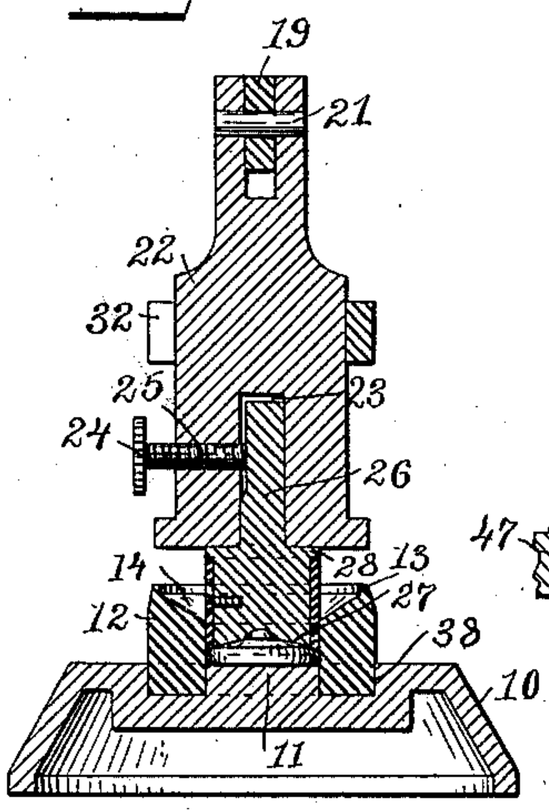


Fig. 3.

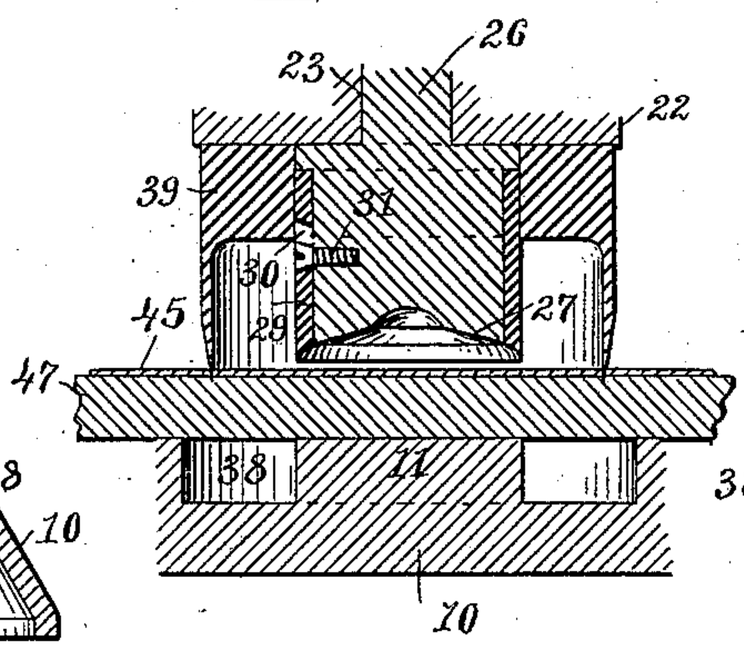


Fig. 4.

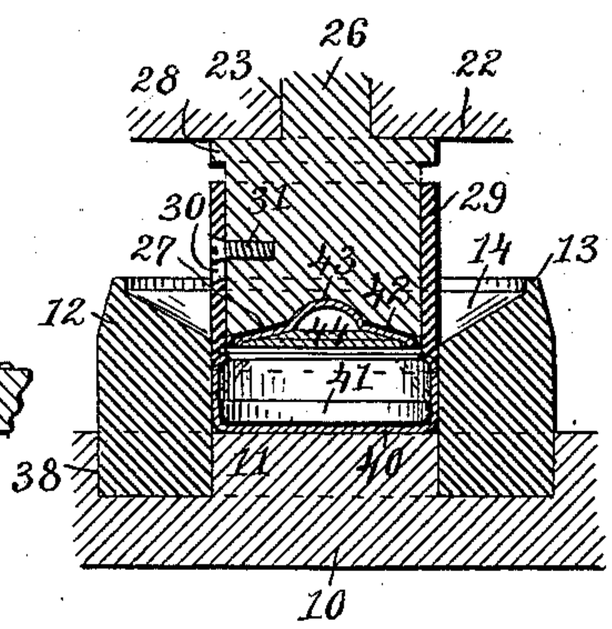


Fig. 5.

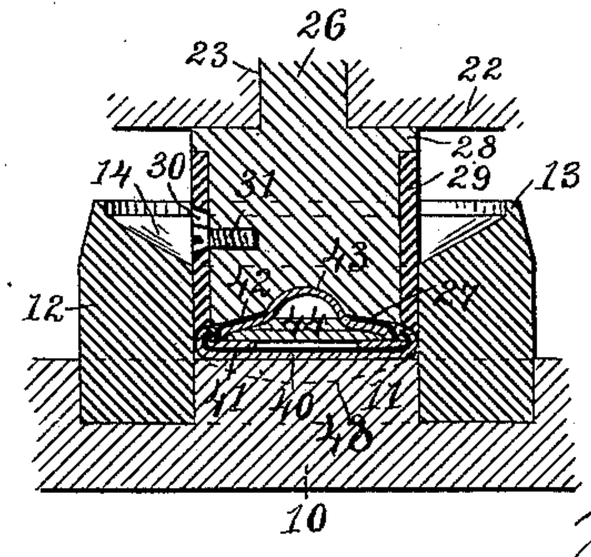
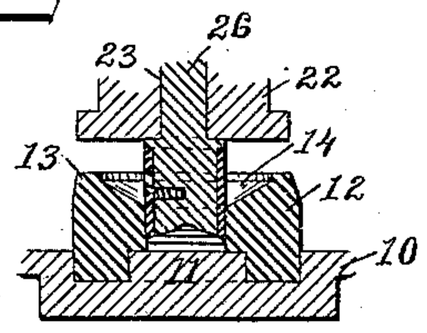


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN C. SCHOTT, OF PROVIDENCE, RHODE ISLAND.

BUTTON-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 361,088, dated April 12, 1887.

Application filed December 8, 1886. Serial No. 220,966. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. SCHOTT, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Button-Making Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a machine for making cloth or analogous buttons. As well known, this class of buttons consists of a front and a back portion. The back portion is composed of a dished annular metal band or collet, into the concavity of which is pressed a cloth disk and paper wads, so that the center of the cloth disk is forced out through the central opening of the collet or band and protrudes sufficiently to act as a shank for the completed button, and by which it may be sewed to a garment. The front portion of the button is composed of a metallic front plate and a disk of cloth for covering the face or outside of the front plate. The back portions are found as completed articles of stock in trade and are of different sizes, in accordance with the different sizes of buttons used. The front plates also come ready made.

One object of my invention is to provide a machine for uniting the ready-made back portions with the front portions and make the finished button.

Another object of my invention is to provide the machine with a removable cutter for cutting out the cloth disks for the button front.

Another object of my invention is to construct the machine so that different-sized buttons may be made therein by making a slight change of parts.

Another object of my invention is to provide increased or auxiliary lever-power for operating the machine.

Another object of my invention is to make a compact hand-machine which may be cheaply and strongly made.

To the above purposes my invention consists of certain combinations set forth in the claims at the end of the specification, and comprising, principally, the following mechanical devices: a pivoted fulcrum-post, a hand-lever pivoted to the fulcrum-post, a swinging plunger pivoted to the hand-lever, a guide secured to the fulcrum-post, a punch adjustably secured to the plunger and provided with a shoulder and a sliding sleeve, a die comprising a fixed die-bed and a removable graduated die-collar, a removable cylindrical cutter, a handle fixed to the bed-plate, an auxiliary lever pivoted to the hand-lever, and a fixed standard provided with a shoulder.

In order that my invention may be fully understood, I have illustrated in the accompanying drawings and will proceed to describe the best form of the machine so far devised by me, and which may be variously modified.

In the accompanying drawings, illustrating my invention, Figure 1 represents a side elevation of my improved button-making machine. Fig. 2 represents a vertical sectional view of the machine, taken on line 2 2 in Fig. 1. Fig. 3 represents an enlarged sectional view, corresponding to the view of Fig. 2, of a portion of the machine, with the die-collar removed and the cutter and cutter-board placed in relative positions, and with a piece of cloth placed upon the board. Fig. 4 represents an enlarged sectional view, similar to the section of Fig. 3, of a portion of the machine, and with the button-back carried by the punch, which is shown as entering the die, in the bottom of which die is placed the cloth disk and the front plate. Fig. 5 represents a sectional view similar to that of Fig. 4, and shows the plunger as having descended and driven the button-back against the front portion and united with the two portions to complete the finished button. Fig. 6 represents a diminished vertical sectional view of a portion of the machine and shows another form of die-collar, which is used with the die-bed for a smaller-sized button than shown in the other views.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, number 10 is the bed-plate, which is chambered on the under side and which may be of any suitable form. Upon the upper face of the bed-plate 10 is formed the die-bed 11, surrounded by the annular recess 38. The die-collar 12 is a short

tubular body, with the rim 13 upon the upper edge and the beveled face 14 sloping from the rim toward the axis of the collar. The die-collar is adapted to fit about the die-bed and to form a die, which coacts with a punch, as hereinafter described.

The pair of ears 15, one of which only is shown, project uprightly from the bed-plate, and are slightly spaced, and between them is fixed the pivot-pin 16, to which the foot of the fulcrum-post 17 is hinged. The upper end of the fulcrum-post 17 is forked, and across the fork is set a pin, 18, which passes loosely through an eye in the end of the hand-lever 19, which may be freely swung in a vertical plane.

Near the pivoted end of the hand-lever 19 is formed a longitudinal slot, 20, through which passes and works the pin 21, which is secured across the bifurcated upper end of the plunger 22. The body of the plunger 22 is cylindrical and the lower end is formed with the axial socket 23, into the side of which is let a set-screw, 24, which works in a screw-threaded perforation, 25, in the plunger.

The punch 26 has a cylindrical stock, which takes in the socket 23 of the plunger, and acts with the set-screw 24 to hold the punch in position. The head of the punch 26 is cylindrical, and is formed with a peculiarly-shaped hollow, 27, upon the lower end, as clearly indicated in the sectional views. The head of the punch is provided with a flange, 28, extending around it, and the tubular sleeve 29 slides over the head, as shown, and abuts against the flange with its upper end. The lower edge of the sleeve 29 is beveled inwardly, and the side of the sleeve is formed with a slot, 30, which slides over a stud, 31, fixed to one side of the plunger. The lower beveled edge of the sleeve 29 comes flush with the hollow face of the punch when the sleeve is slid to the upper limit, as shown in Figs. 2, 3, 5, and 6, and when the sleeve is at the lowest limit the sleeve projects a considerable distance below the punch, as shown in Fig. 4.

The swinging plunger, together with its attached punch, is maintained in axial alignment with the die by means of the guide 32, which is fixed to the pivoted fulcrum-post, and consists of a short arm with an open ring fixed thereto, through which the plunger may slide when the hand-lever is raised or lowered, and thereby prevent the plunger from having an extended lateral play.

In order to secure a convenient and efficient way of gaining the requisite hand-power with which the punch may be driven into the die when the machine is unstable, I provide a rigid handle, 33, which is cast on the bed-plate and is disposed in the same vertical plane with the hand-lever. When the punch is made to approach the die by lowering the hand-lever the operator grasps the free end of the hand-lever and the handle 33 with one hand and forces them toward each other. This construction will serve to give all the power ordinarily necessary in using the machine. However, to further increase the pressure with which the punch may be forced into the die, I have arranged a fixed standard, 34, which is mounted on the bed-plate and stands upright and is formed with a forked upper end, each prong of which is provided with a shoulder or lip, 35, which are engaged by the respective prongs of the lower forked end of the auxiliary lever 36, which is pivoted upon the back of the hand-lever by means of the pin 37. It is evident that when the hand-lever is lowered and the ends of the auxiliary lever 36 engage the shoulder 35, the punch may be driven into the die by forcing the hand and auxiliary levers together, and, further, when the handle is grasped, as above described, and the auxiliary lever brought nearer the handle, the pressure will be much increased.

From the foregoing description of the machine the following description of its operation will be readily understood. The punch is raised clear above the die, so as to allow the disk of cloth 40 to be placed over the top of the die, and then the front plate, 41, which consists of a metallic disk with an upset edge of smaller diameter than the cloth, is placed upon the cloth disk with the upturned edge upward. The front plate and cloth disk are then together pushed down into the die by a finger of the operator, or otherwise, until these parts which form the front portion of the button are in the positions shown in Fig. 4. The button-back, composed of the collet or annular band 42, the cloth 43, and the wads 44, all previously secured together, is placed within the hollow 27 of the punch, and the hand-lever is forced downwardly to drive the punch into the die. When the punch enters the die the sleeve is in slight advance of the punch-face and the button-back, and so the upturned margin of the cloth disk 40 is forced inwardly into the position of the broken lines in Fig. 4. The plunger descending sends the lower edge of the sleeve against the upset edge of the front plate, 41, and then the sleeve rests and the punch slides through the sleeve until the flange 28 on the punch forces the sleeve farther down. In the meantime the margin of the cloth disk 40 has been folded inwardly under the button-back, which is now in contact therewith. The punch then forces the button-back against the front portion, and the beveled edge of the sleeve turns the edge of the front plate, 41, slightly over on itself, so as to bind the cloth 40 between said edge and the metallic ring 42. By this means the front and back of the button are securely united into a compact finished button, which may be removed from the die by lifting the die-collar from the die-bed.

It is to be observed that Figs. 2, 3, 4, and 5 show the die-bed and the opening of the die-collar as of the same diameters. This may be supposed to represent the largest size of die used in order to make the largest required button. When a smaller size of button is re-

quired only the opening of the die-collar needs to be reduced. I therefore have a set of die-collars each one with a different size of opening, in order to make the different sizes of buttons. As shown in Fig. 6, when a die-collar is used with a smaller opening, the die-bed is partly covered over by the collar.

In Fig. 3 I show a tubular cutter, 39, designed to be used with my machine for cutting the cloth disks for the button. These cutters are made of different sizes, and are formed with a sharpened lower end. The cutter 39 is adapted to fit snugly around the punch and sleeve, and when placed in position for use the die-collar is removed and the cutter-board 47 is placed over the die-bed, as shown in Fig. 3. The piece of cloth 45 is laid on the cutter-board, and the hand-lever being forced down, the plunger will drive the cutter through the piece of cloth and cut therefrom a cloth disk for the button-front.

My improved machine is a handy and portable one, and need not be secured to anything in order to operate it.

The machine may be used with great advantage when it is desired to have the buttons for garments made of the same material as the garment. The cloth disks may be cut from the same cloth as the garment and thereby made to match.

It is to be observed that in order to form a button with a convex front, instead of a flat front, as I have here shown, the face of the die-bed may be made concave, as indicated by the dotted lines 48 in the sectional view of Fig. 5.

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

1. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and die, of a fulcrum-post pivoted to the bed-plate, a hand-lever pivoted to the fulcrum-post, a swinging plunger pivoted to the hand-lever, and a punch actuated by the plunger co-acting with the die, substantially as described.

2. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and a die, of a fulcrum-post pivoted to the bed-plate, a hand-lever pivoted to the fulcrum-post, a swinging plunger pivoted to the hand-lever, a punch actuated by the plunger, and a guide mounted upon the fulcrum-post and adapted to receive the plunger, substantially as herein described.

3. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and a die, of a fulcrum-post, a hand-lever pivoted to the fulcrum-post, a plunger actuated by the hand-lever, a punch actuated by the plunger, and a handle secured to the bed-plate and adapted to be grasped, together with the free end of the hand-lever, for gaining the required pressure, substantially as herein described.

4. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and die, of a fulcrum-post, a hand-lever pivoted to the fulcrum-post, a plunger actuated by the hand-lever, a punch actuated by the plunger, an auxiliary lever pivoted upon the hand-lever, and a standard mounted on the bed-plate and provided with a shoulder or the like for the auxiliary lever to engage with, substantially as herein described.

5. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and die, of a fulcrum-post, a hand-lever pivoted to the fulcrum-post, a plunger actuated by the hand-lever, a punch operated by the plunger, an auxiliary lever pivoted upon the hand-lever, a standard fixed upon the bed-plate and provided with a shoulder or the like for the auxiliary lever to engage with, and a handle mounted on the bed-plate, substantially as herein described.

6. In a button-making machine, the combination, as hereinbefore set forth, with a bed-plate and a reciprocating plunger, of a removable cutter-board and a removable cloth-cutter adapted to be operated by the plunger, substantially as and for the purpose herein described.

7. In a button-making machine, the combination, as hereinbefore set forth, with a reciprocating plunger and a punch actuated by the plunger, of a die for the punch, the same consisting in a fixed die-bed, and an interchangeable set of removable graduated die-collars, each adapted to fit about the die-bed and for making different-sized buttons, substantially as herein described.

8. In a button-making machine, the combination, as hereinbefore set forth, with a die, of a reciprocating plunger, a punch actuated by the plunger, and a sliding sleeve placed upon the punch and coacting therewith in the die, substantially as and for the purpose herein described.

9. In a button-making machine, the combination, as hereinbefore set forth, with a die, of a reciprocating plunger, a punch actuated by the plunger and having a guide screw or pin and formed with a hollow face, and a sliding sleeve provided with a beveled edge and having a guide-slot for the guide screw or pin, said sleeve placed about the punch, and moving in advance of the punch into the die, substantially as and for the purpose herein described.

10. In a button-making machine, the combination, as hereinbefore set forth, with a die, of a reciprocating plunger, a punch actuated by the plunger and having a flange thereon, and a sliding sleeve working on the punch and abutting against the flange, said sleeve adapted to enter the die in advance of the punch and to recede, substantially as and for the purpose herein described.

11. In a button-making machine, the combination, as hereinbefore set forth, with the bed-plate 10 and the die, of the fulcrum-post 17, provided with the guide 32 and pivoted to the bed-plate 10, the hand-lever 19, pivoted to the

fulcrum-post 17, the swinging plunger 22, pivoted to the hand-lever, and the handle 33, fixed upon the bed-plate, substantially as herein described.

12. In a button-making machine, the combination, as hereinbefore set forth, with the bed-plate 10 and the die, of the fulcrum-post 17 and the hand-lever pivoted thereto, the plunger 22, coacting with the die, the forked standard 34, mounted on the bed-plate and provided with the shoulders 35, and the forked auxiliary lever 36, pivoted on the hand-lever and engaging with shoulder 35, substantially as herein described.

13. In a button-making machine, the combination, as hereinbefore set forth, with the bed-plate 10 and the reciprocating plunger 22, provided with the punch 26, of the removable cutter-board 47 and the removable cutter 39, for cutting the cloth disks, substantially as herein described.

14. In a button-making machine, the combination, as hereinbefore set forth, with the bed-plate 10, formed with the annular recess 38 and the die-bed 11, of the removable die-collar 12, adapted to remain stationary when the machine operates, the reciprocating plunger 22, provided with the punch 26, and the sleeve 29, having a beveled edge and sliding on the punch 26 and having means for holding the sleeve on the punch, all substantially as and for the purpose herein described.

15. In a button-making machine, the combination, as hereinbefore set forth, with the bed-plate 10 and the die-bed 11, of the removable die-collar 12, adapted to remain stationary when the machine operates, the reciprocating plunger 22, the punch 26, mounted in the plunger and provided with the flange 28 and the guide-screw 31, and the sliding sleeve formed with the lower edge beveled and provided with the guide-slot 30, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN C. SCHOTT.

Witnesses:
J. A. MILLER, Jr.,
M. F. BLIGH.