Oct. 25, 1927. 1,647,042

S. GREENWALD ET AL

TOOL FOR APPLYING SHOE BUTTONS

Filed April 30, 1926 2 Sheets-Sheet 1

Fig. 1.

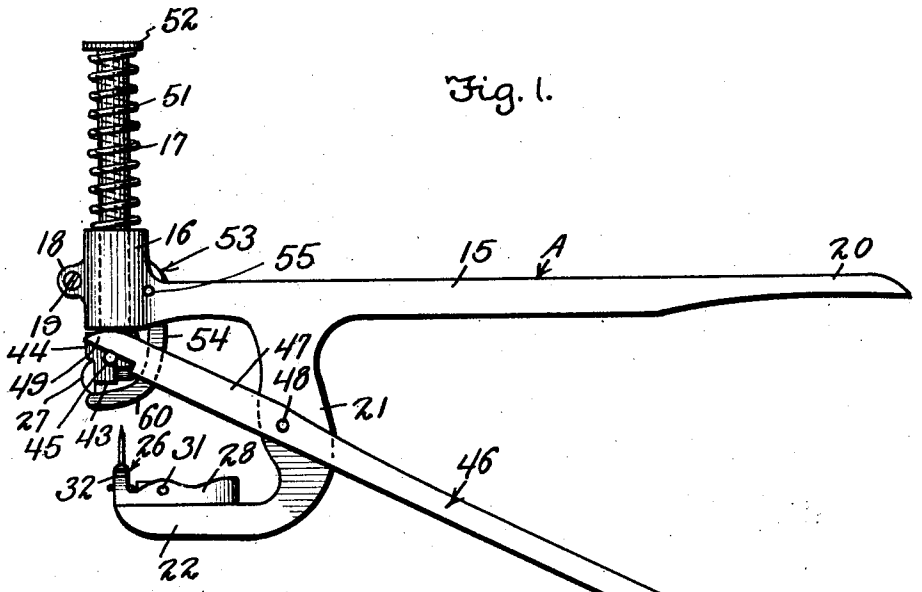
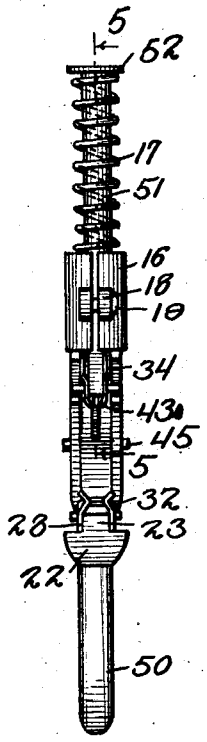


Fig. 2.



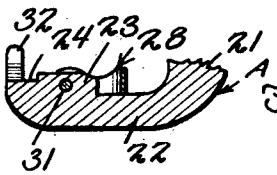


Fig. 3.

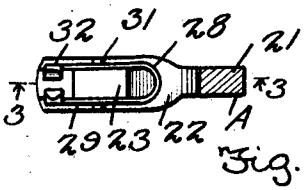


Fig. 4.

Witnesses
C. E. Churchman Jr.

Sidney Greenwald
Salvatore Cascio,
Inventor

By Richard B. Owen
Attorney

Oct. 25, 1927. 1,647,042

S. GREENWALD ET AL

TOOL FOR APPLYING SHOE BUTTONS

Filed April 30, 1926 2 Sheets-Sheet 2

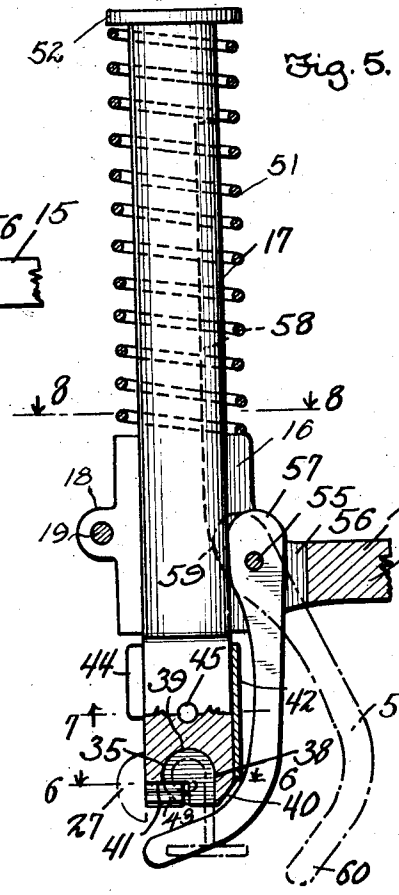


Fig. 5.

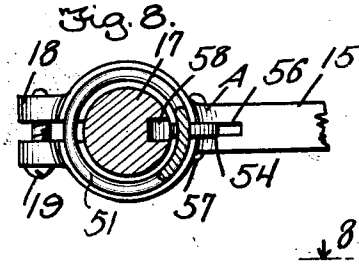


Fig. 8.

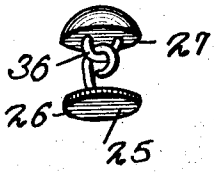


Fig. 10.

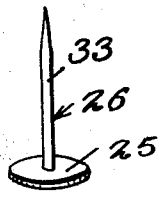


Fig. 9



Fig. 12.

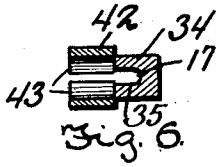


Fig. 6.

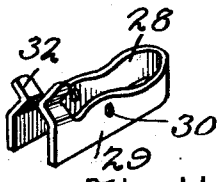


Fig. 11.

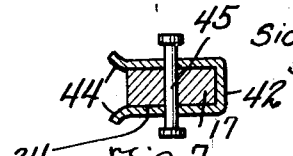


Fig. 7.

Witnesses
C. E. Churchman Jr.

Sidney Greenwald
Salvatore Cascio
Inventor

By Richard B. Owen

Attorney

Patented Oct. 25, 1927. 1,647,042

UNITED STATES PATENT OFFICE.

SIDNEY GREENWALD AND SALVATORE CASCIO, OF BROOKLYN, NEW YORK.

TOOL FOR APPLYING SHOE BUTTONS.

Application filed April 30, 1926. Serial No. 105,855.

This invention appertains to tools and more particularly to a novel device for applying buttons to shoes and the like.

The primary object of the present invention is to provide a buttoning tool embodying automatic means associated directly with the tool for ejecting the button and leather from the tool after the button has been clinched in place by the tool.

Another salient feature of the invention is the provision of an ejecting arm pivotally mounted on one arm of the tool and movable into and out of the path of the button by the operation of the sliding button carrier.

A further object of the invention is the provision of novel means for holding the button in place and the fastener in place during the operation of the tool and novel means for clinching the fastener, so as to insure the proper insertion of the shank of the fastener through the eye of the button without danger of displacing the button during the operation of the tool.

A still further object of the invention is to provide a novel tool of the character described which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the improved tool showing a button and fastener therefor in position on the tool,

Figure 2 is a front elevation of the improved tool,

Figure 3 is a detail longitudinal section taken on the line 3—3 of Figure 4 showing the lower jaw for holding the fastener in position,

Figure 4 is a top plan view of the lower jaw,

Figure 5 is an enlarged central section taken on the line 5—5 of Figure 2 showing the upper jaw for supporting the button and the anvil for clinching the fastener through the eye of the button, the figure also showing the ejecting arm in ejecting position in full lines and in normal non-ejecting position in dotted lines,

Figure 6 is a detail section taken on the line 6—6 of Figure 5 looking in the direction of the arrows illustrating the holding means for the button,

Figure 7 is a detail horizontal section taken on the line 7—7 of Figure 5 looking in the direction of the arrows,

Figure 8 is a detail section taken on the line 8—8 of Figure 5 looking in the direction of the arrows illustrating the means of mounting the sliding plunger on the upper arm,

Figure 9 is a detail perspective view of the fastener employed for the button,

Figure 10 is a perspective view of the button and fastener after the fastener has been clinched through the eye of the button,

Figure 11 is a detail perspective view of the holder for the shank of the fastener, and

Figure 12 is a view similar to Figure 10 showing the button applied to a shoe or the like.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates the improved tool which comprises an arm 15 having the forward end thereof provided with a split sleeve 16 for reciprocably receiving a plunger or pin 17 the purpose of which will be hereinafter more fully described. The sleeve 16 on each side of the split portion thereof is provided with alined ears 18 for the reception of a screw 19 for adjusting the sleeve about the plunger or pin 17. The rear end of the arm 15 is provided with a suitable manipulating handle 20. At a point inward of the sleeve 16, the arm 15 is provided with a depending leg 21 having the forwardly extending foot 22 which terminates directly below and in vertical axial alinement with the sleeve 16. As shown the foot 22 is arranged in substantial parallel relation to the arm 16. The inner face of the foot 22 is provided with an integral attaching block 23, the forward end of which at its inner face is provided with a recess or seat 24 for the disk shaped base 25 of the fastener 26 for the button 27. The block 23 has associated therewith the means for holding the fastener 26 in position during the

application of the button to the shoe and this means consists of a U-shaped spring 28, the arms 29 of which lie on opposite sides of the block or saddle 23. The arms 29 of the spring 28 are provided with openings 30 for the reception of the terminals of a suitable guide pin 31 carried by the block or saddle 23. This forms an effective means for allowing spreading of the arms without displacement of the spring from off of the block or saddle. The forward ends of the arms 29 of the spring 28 on each side of the seat or recess 24 are provided with upstanding inwardly directed gripping ears 32, which are adapted to engage the disk shaped base 25 of the fastener 26 when the same is slid into the seat 24. It is to be noted at this point that the fastener 26 is provided with a pointed penetrating shank 33 which is adapted to be clinched through the eyelet of the button.

The inner end of the plunger has the opposite sides thereof flattened as at 34 and the extreme inner end thereof is provided with an anvil 35 which serves the function of clinching the shank 33 through the eyelet 36 of the button 27. This anvil forms one of the features of the invention and is provided with a straight inner guide face 38, which gradually leads into the arcuate face 39 which forms the means for clinching the shank. The inner edge of the anvil is slightly beveled or rounded as at 40 for a purpose, which will be hereinafter more fully described, while the outer face of the anvil is provided with a seat 41 for the reception of the eyelet 36 of the button 27.

In order to hold the button in position and the eyelet in alinement with the arcuate face 39 of the anvil a holding spring 42 is provided. This spring 42 is of a U-shape in cross section and embraces the flattened faces 34 of the plunger. The extreme lower end of the spring 42 is provided with inwardly directed spring fingers 43 for gripping the eyelet and holding the same in the seat 41. The forward front edges of the sides of the spring adjacent to the upper or inner end thereof is provided with outturned resilient lugs 44 the purpose of which will also be hereinafter more fully described.

The spring 42 is held against displacement by means of a pin 45 which extends transversely through the plunger and the sides of the spring 42. The terminals of the pin 45 extend beyond the opposite faces of the plunger and forms a bearing for the operating arm 46, as will now be described.

The operating arm 46 has its inner end bifurcated to provide a yoke 47 which straddles the depending leg 21 and the yoke is pivotally connected to the leg 21 at a point intermediate its ends by a suitable pivot pin 48. The extreme forward end of the yoke 47 is notched as at 49 for resting on the terminals of the pin 45 and the bifurcated portion 47 engages the resilient lugs or lips 44 of the spring 42 and these lugs or lips normally exert a tension thereon so as to prevent any lost motion between the operating arm and the plunger. The outer end of the arm 46 is provided with a suitable manipulating handle 50.

An expansion spring 51 is coiled about the plunger 17 and is confined between the sleeve 16 and a head 52 formed on the outer end of the plunger. This spring functions to normally hold the plunger and anvil in a raised position.

In connection with the plunger 17 I have provided a novel ejector 53 which forms one of the main features of this invention. This ejector 53 comprises an ejector arm 54 rockably mounted on a pivot pin 55 carried by the arm 15 adjacent to the sleeve 16. The arm 15 at this point is slotted as at 56 to receive the ejector arm 54 and the upper end of the ejector arm is provided with a cam head 57. This cam head is normally received within a longitudinally extending groove 58 formed in the plunger 17 and the inner end of the groove is provided with an inclined face 59 for engaging the head 57 and actuating the arm as will be later described. The lower or inner end of the ejector arm 54 is provided with an arcuate kicker foot 60 the purpose of which will also be hereinafter more fully described.

It is to be noted however that when the plunger 17 is being moved inwardly that the inclined face 40 of the plunger will engage the arcuate foot 60 and move the foot out of the path of the plunger. When the plunger is in its extreme raised position the inclined wall 59 of the groove 58 formed in the plunger 17 will engage the cam head 57 of the ejector and swing the ejector on its pivot 55 for moving the kicker foot directly under the anvil or lower end of the plunger as clearly shown in Figure 5 of the drawings.

In operation of the improved tool the fastener 25 is grasped and the disk shaped face 25 is slid into the seat 24 between the arms or resilient legs 32 of the spring 28, after which the button is taken and the eyelet 36 thereof slid into the seat 41 between the clamping jaws or arms 43 of the spring 42. The handles 20 and 50 are now grasped in the ordinary manner and the plunger is placed over the leather where the button is to be applied. The handles are now brought toward one another and the shank 33 of the fastener 26 will be forced through the leather and will engage first the straight face 38 of the anvil and then the arcuate face 39 of the anvil. This will clinch the shank and coil the same back and through the eyelet 36 of the button. It is to be noted that the shank is first bent before being passed through the eyelet 36 and when the shank

is being passed through the eyelet the same will have a tendency to hold the eyelet in place. Upon release of pressure from the handles 20 and 50 the spring 51 will move the plunger to its normal position and when the plunger 17 has reached its full raised position the ejector 54 will be forcibly operated and the kicker foot 60 will engage the fastener 26 and force the fastener, the button and the leather out of the tool.

Thus it is obvious that the application of the tool is considerably facilitated by the inclusion of the ejector, which as heretobefore stated forms one of the important features of the invention.

Changes in details may be made without departing from the spirit or scope of the invention, but:

What we claim as new is:

1. A buttoner comprising a rigid handle, a plunger slidably carried by the forward end of the handle having a fastener shapening anvil and a button holding means, a foot arranged in substantial parallel relation to the handle, a fastener holder carried by the foot, an operating handle pivotally connected with the first mentioned handle for the plunger, and an ejector arm operated by the plunger and movable toward and away from the inner end of the plunger.

2. A tool for applying buttons comprising a pair of pivotally connected operating handles, a sliding plunger carried by one of the handles, means operatively connecting the other handle and the plunger, a forming anvil carried by the inner end of the plunger and a button holder for the anvil, and an ejector arm for the button actuated by the plunger.

3. A tool for applying buttons of the shoe type comprising a rigid handle, a sleeve carried by the forward end of the handle, a normally raised plunger reciprocably mounted in the sleeve, a fastener forming anvil on the inner end of the plunger, means for holding a button on the anvil, a foot formed on the handle and lying in parallel relation thereto and terminating in axial alinement with the plunger, means for holding a fastener on the foot, a pivoted operating handle for the plunger, and an ejector arm pivotally secured to the rigid handle actuated by the plunger having an arcuate ejector foot for movement toward and away from the anvil.

4. A tool for applying buttons of the shoe type comprising a rigid handle, a sleeve carried by the forward end of the handle, a normally raised plunger slidably mounted in the sleeve, an anvil formed on the inner end of the plunger, a button holding spring for the anvil, a foot carried by the handle and lying substantially parallel therewith and terminating in axial alinement with the plunger, a fastener holding spring carried by the foot, an operating handle for moving the plunger toward and away from the foot, an ejector arm rockably carried by the rigid arm having the inner end thereof provided with an arcuate ejector foot normally overlying the anvil when the plunger is in its raised position, a cam formed on the outer end of the ejector arm, the plunger having a longitudinally extending slot for normally receiving the cam and an inclined wall for engaging the cam for rocking the same when the plunger is in its raised position.

5. A tool for applying buttons of the shoe type comprising a rigid handle, a sleeve formed on the inner end of the handle, a plunger reciprocably mounted in the sleeve, spring means normally tending to move the plunger to a raised position, a fastener clinching anvil formed on the inner end of the plunger, a button holding spring carried by the anvil, a fastener holding foot carried by the handle and arranged below the anvil. an operating handle for actuating the plunger against the tension of said spring, the plunger being provided with a longitudinally extending slot, the inner wall of the slot terminating in an inclined operating face, an ejector rockably connected to the rigid handle having a cam head normally fitted within the slot and an arcuate ejector foot, the anvil having an inclined face normally tending to move the foot out of the path of the plunger during actuation thereof, and the operating face actuating said cam for moving the foot over the anvil when the plunger is in its raised position, as and for the purpose specified.

6. In a tool for applying shoe buttons, a rigid handle, of a plunger reciprocably carried by the handle, a foot associated with the handle and lying inwardly of the plunger, an operating handle for the plunger, a fastener clinching anvil formed on the plunger having a straight guiding face and an arcuate forming face, an eyelet receiving seat formed on the anvil at the terminal of the arcuate forming face, means for holding the eyelet in position on said seat, a fastener receiving seat formed on the foot in direct alinement with the straight guiding face of the anvil, a button ejector, and means on said ejector cooperating with said plunger to cause operation of the ejector upon a movement of said plunger.

7. In a tool for applying shoe buttons, a rigid handle, a plunger reciprocably carried by the handle having the opposite faces at its inner end flattened, a fastener clinching anvil formed on the inner end of the plunger, an eyelet receiving seat formed on the plunger communicating with the anvil, a spring U-shaped in cross section fitted about the flattened faces of the plunger having resilient gripping jaws overlying said seat, a foot carried by the handle, a fastener re-

ceiving seat formed on the foot in alinement with the anvil, an operating handle for the plunger, and a button ejecting member carried by said rigid handle and operated by a movement of said plunger.

8. In a tool for applying shoe buttons, a rigid handle, a plunger reciprocably carried by the handle having the opposite faces thereof flattenel at its inner end, a fastener clinching anvil formed on the inner end of the plunger, an eyelet receiving seat formed on the plunger communicating with the anvil, a spring U-shaped in cross section fitted about the flattened faces of the plunger having resilient gripping jaws overlying said seat, a foot carried by the handle, a fastener receiving seat formed on the foot in alinement with the anvil, forwardly projecting resilient outstruck tongues formed on said spring, a retaining pin extending through the plunger and spring for holding the spring in position, the terminals of the pin extending beyond the plunger, and an operating handle pivotally connected with the rigid handle having a yoke receiving the plunger and bearing against the terminals of the pin, said resilient tongues engaging the inner faces of the yoke, as and for the purpose specified.

9. A tool for applying buttons comprising a pair of operating handles, a sliding plunger carried by one of the handles, means operatively connecting the other handle and the plunger, a forming anvil carried by the plunger, a button holder for the anvil, and a button ejecting means actuated by said plunger.

10. A tool for applying buttons comprising a sliding plunger, a forming anvil carried by the plunger, a button holder for the anvil, an ejector arm, and a cam head on said arm, the plunger being provided with a groove having an inclined face for engagement with the cam head when the plunger is in raised position whereby an ejecting movement is imparted to said arm.

11. A tool for applying buttons comprising a pair of operating handles, a sliding plunger carried by one of the handles, means operatively connecting the other handle and the plunger, a forming anvil carried by the plunger, a button holder for the anvil, an ejector having a pivoted ejecting arm, a cam head on said arm, the plunger having a groove formed therein, an inclined face for engaging the cam head when the plunger is in raised position whereby an ejecting movement is imparted to said arm, and means on the plunger for moving the arm out of the path thereof when the plunger is descending.

In testimony whereof we affix our signatures.

SIDNEY GREENWALD.
SALVATORE CASCIO.