

(No Model.)

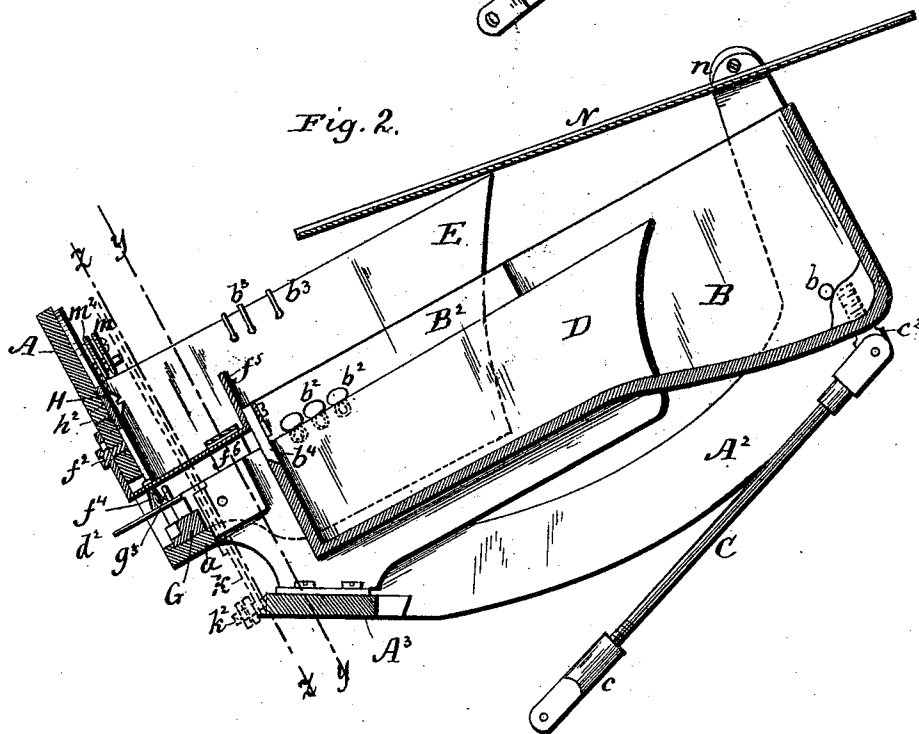
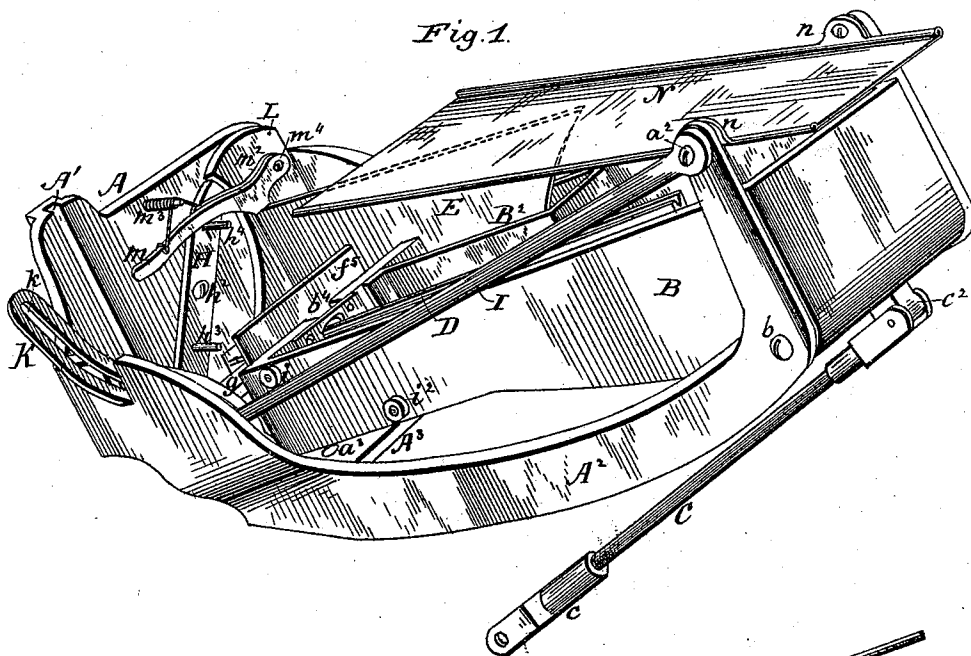
2 Sheets—Sheet 1

E. CHRISTENSEN.

MACHINE FOR CONNECTING BUTTON SHANKS AND FASTENERS.

No. 500,993.

Patented July 4, 1893.



WITNESSES

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J. J. Masson

INVENTOR

Emil Christensen

by E. E. Masson, Attorney

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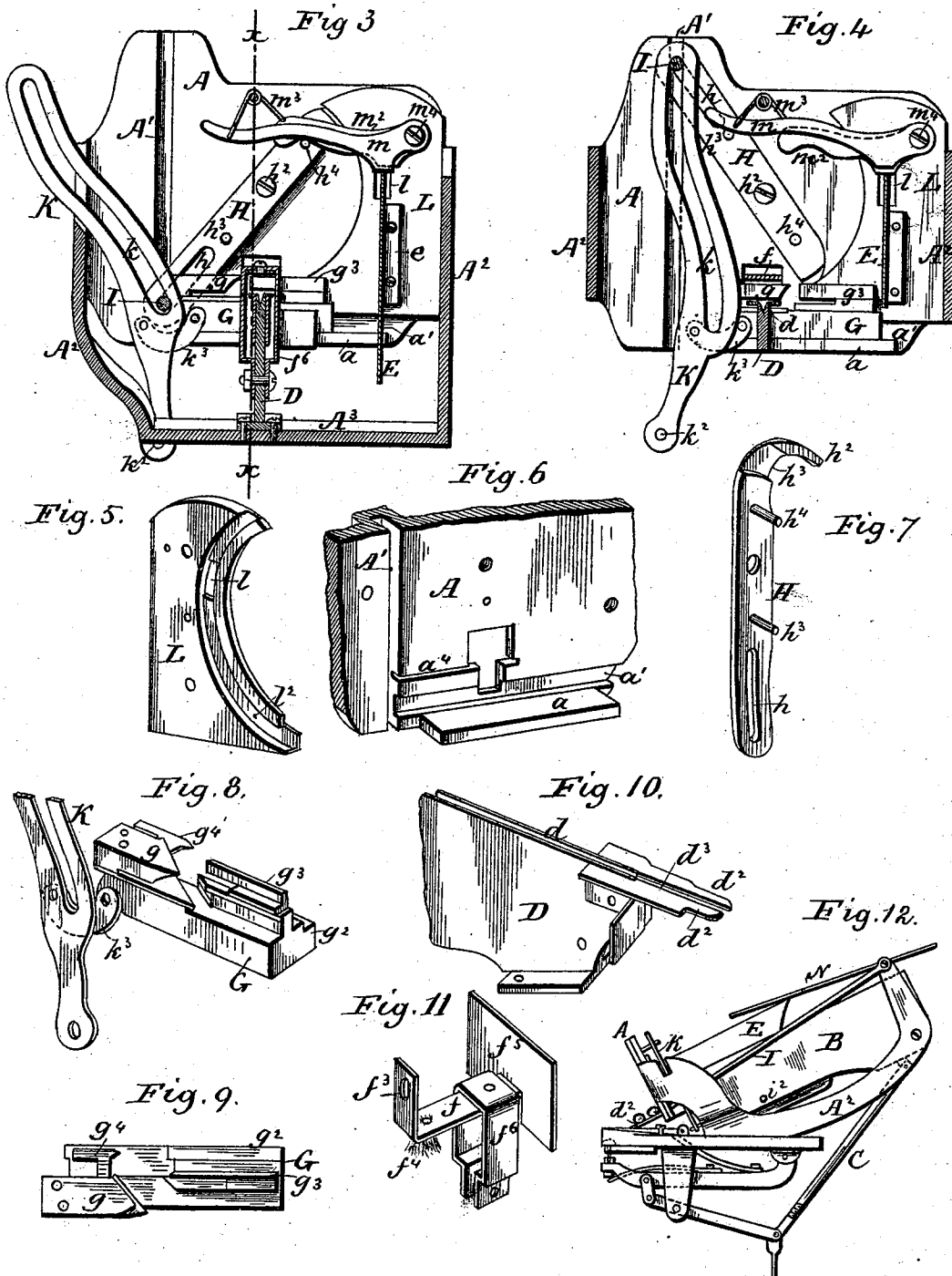
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UNITED STATES PATENT OFFICE.

EMIL CHRISTENSEN, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO
IGNATZ WISLER, OF SAME PLACE.

MACHINE FOR CONNECTING BUTTON SHANKS AND FASTENERS.

SPECIFICATION forming part of Letters Patent No. 500,993, dated July 4, 1893.

Application filed January 9, 1893. Serial No. 457,801. (No model.)

To all whom it may concern:

Be it known that I, EMIL CHRISTENSEN, a citizen of the United States, residing at Portland, in the county of Multnomah, State of Oregon, have invented certain new and useful Improvements in Machines for Connecting Button Shanks and Fasteners, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to machines used in attaching buttons; and the objects of this improvement are to provide a machine of simple and inexpensive construction to automatically connect a staple with the shank of each button preparatory to its attachment to a piece of leather or of fabric. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a button-stapling machine constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section of the same on line *xx* of Fig. 3. Fig. 3 is a transverse vertical section of the machine on line *yy* of Fig. 2, showing the hooked point of the staple-advancing lever at the upper end of its course as when the front end of the button and staple-holding box is depressed as shown in Figs. 1 and 2. Fig. 4 is a transverse vertical section of the same on line *zz* of Fig. 2 showing the hooked point of the staple-advancing lever at the lower end of its course as when the front end of the button and staple-holding box is elevated. Fig. 5 represents in perspective the inner side of the race-way for the staples and for the hooked end of the staple advancing lever. Fig. 6 represents in perspective a portion of the inner side of the front plate of the frame showing a vertical groove to guide the front end of a pivoted rod used to operate the staple and button advancing devices; and also horizontal grooves to guide said button controlling and advancing device. Fig. 7 is a perspective view of the staple advancing lever. Fig. 8 is a perspective view of the button controlling and advancing device and of a portion of its operating lever. Fig. 9 is a top view of the button controlling and advancing device. Fig. 10 is a perspective view of the front end of the button race-way. Fig.

11 is a perspective view of the brush carrying plate to control the escape of the button at the time it receives its staple. Fig. 12 is a side view of the button-shank connecting machine mounted upon the button setting machine represented in Patent No. 309,080, of December 9, 1884.

In said drawings the frame of the machine consists of a front plate A, having rearwardly extended therefrom two wings A² united in their front portions by a transverse plate A³. These parts are generally cast together in one piece, and said transverse plate has vertical perforations *a*³ to receive screws by which the frame is secured to the top of the stand-ard of a button setting machine, (for example the machine known in the market as the "Trojan") in place of the grooved button-feeding tube usually found in that class of machines.

To the rear portion of the two wings A² of the frame, a box B is pivoted at *b*. The front portion of said box is adapted to be vertically oscillated by means of a connecting rod C adjustably connected with the rear end of said box, adjacent to the pivot *b*. The lower end of said rod is to be connected by means of a bell crank lever or other suitable means with the vertically operating rod of the button-setting machine, said rod being usually connected with a treadle at the bottom thereof.

To adjust the length of the rod C to variously constructed button-setting machines, its lower end is screw-threaded and received into a socket *c* having its lower end forked to embrace and be connected with the bell-crank lever. The upper end C is also provided with a forked socket that is pivoted to the head of a screw *c*² adjustably secured to the bottom of the box B. This box is to receive a supply of buttons *b*² and has its front portion partitioned off to form a box B³ to receive a supply of button-staples *b*³. The bottom and also the front of the box B have slots to permit it to be vertically oscillated against the sides of the stationary button race-way D, and of the stationary staple guide-plate E. The grooved race-way D is secured by its lower edge to the top of the transverse plate A³ of the frame; but the guide plate E has

its front edge secured to the front plate A of the frame by a small angle plate *e*. The upper edge of the race-way B has a groove *d* the whole length thereof to receive the shanks of the buttons lodged thereon from the supply in the box B, at each oscillation of the latter. The front end of the raceway D, is provided with a thin narrow plate *d*² secured thereto on each side thereof by flanging downwardly the rear portion of said plates. The front ends of the plate *d*² are made to extend through an opening in the front plate A of the frame and they are kept apart to form a groove *d*³ between them in continuation with the groove *d*, to direct the buttons that have been provided with a staple, under the plunger of the button-setting machine.

To permit the buttons received in the inclined race-way D to slide down said race-way and out of the front end of the box B, there is in said front end near the top thereof an opening *b*⁴ of sufficient size for the passage of said button when said front end has nearly reached the lower end of its oscillation. After the buttons have left the box B, they are prevented from leaving the groove *d*³ by means of narrow plate *f* located above, and nearly in contact with the buttons. Said plate *f* is made to pass through an opening in the front plate A of the frame, and has its front end bent upward and adjustably secured to the outer face of the plate A by means of a screw *f*² passing through a slot *f*³ in the upwardly bent end of the plate *f*. The forward portion of the plate *f* carries pendent therefrom a tuft of hair or of fine bristles *f*⁴ to temporarily arrest the buttons in the groove *d*³ of the inclined race-way, the button in contact with the side of the bristles *f*⁴ having then, its shank in proper position to receive a staple advanced laterally therein. The rear end of the plate *f* is also bent upward at *f*⁵ to form a shield for the front end of the box B. The rear portion of the plate *f* is steadied against lateral displacement by means of a sheet metal strip *f*⁶ that has its lower ends secured to the race-way D. After the button-shank has received its staple, it is forced forward beyond the tuft of bristles by a beveled point or plow-share shaped finger *g* carried on top of a carriage G that is adapted to be moved transversely across the rear face of the front plate A of the frame. This carriage is mounted upon a shelf *a* projecting rearwardly from the bottom edge of said plate A. The front edge *g*² of the carriage is received into a groove *a*¹ formed longitudinally in the plate A above its shelf *a* to prevent it from being lifted by the members that reciprocate it. The carriage G also carries a cut-off plate *g*³ to arrest the row of buttons sliding along the race-way until the front one is needed to be advanced by the beveled finger *g*. Said carriage carries also horizontally a sheet metal finger *g*⁴ that has a V shaped point to enter the wire loop or shank of one of the buttons and positively guide and retain it in

proper position for one of the branches of the staple to enter said shank. Room to operate said finger *g*⁴ is obtained in a horizontal groove *a*⁴ formed in the plate A of the frame.

To reciprocate the carriage G, and also to give at the same time an oscillating rotation to a pivoted lever H used to positively advance each staple into the shank of a button, there is pivoted at *a*² to the upper end of one of the wings A² of the frame, a rod I, that is thus located along-side of the box B and has its front portion vertically oscillated by said box, by coming in contact with projections, or preferably rollers *i*² projecting from the side of the box B, one above, and one under said rod I. The front portion of the rod I is made to pass through a slot *k* formed in a lever K having its lower end pivoted upon a pin *k*² projecting from the front edge of the transverse plate A³ of the frame, and also through a slot *h* made lengthwise of the lever H. The front end of the rod I terminates into a vertical groove A' formed in the front plate A, whereby it is properly guided and permitted to oscillate the carriage G horizontally, and the lever H around the pivot *h*², said carriage G being connected to the lever K by means of a link *k*³.

To bring the staples *b*³ from the top of the inclined guide plate E, to, and through the looped shanks of the buttons said staples are allowed to pass through an opening *l* in a plate L secured to the inner face of the front plate A of the frame. Said opening leads the staple into a segmental groove *l*² formed into said plate L. The lower end of said groove terminates at a point in front of the cut-off *g*³ and under the tuft of bristles *f*⁴. Each staple drops into the groove *l*² with its two prongs downward, but as said groove is in the form of a quarter of a circle, when the staple reaches the lower end of the groove, it is held horizontally with its upper prong in the proper position to enter the shank of the button that has been brought to that point as before stated.

To positively advance the staple in the groove *l*² until it has been received by the shank of the button, the lever H is used; its end *h*² is curved in the form of a hook to travel in said groove *l*², a notch *h*³ being cut into the side of the lever to straddle the segmental portion of the metal between the groove *l*² and the inner edge of the plate L. To prevent the staples *b*³ from being fed too rapidly into the groove *l*², but to cause them to be dropped one by one, two latches *m* and *m*² placed nearly side by side, are made to rest upon the guide plate E by means of springs *m*³ pressing upon said latches, the latter having one end pivoted at *m*⁴ to the plate L. To elevate the opposite end of said latches at different times, one after the other, the lever H has projecting from its face two pins *h*³ and *h*⁴ about equidistant from the pivot pin *h*² of said lever. The pin *h*³ is to elevate the latch *m* as shown in Fig. 4 and permit one of the staples

to slide down the guide plate E to the side of the latch m^2 where it becomes arrested, until the lever H is swung around to the position shown in Fig. 3. Then the pin h^4 lifts the latch m^2 and permits the staple to advance upon, and drop from the end of the plate E, into the guide-groove l^2 .

The box B is provided with a rectangular sheet metal cover N that has side lugs n to receive pivot pins or screws secured in the upper ends of the two wings of the frame. Said cover is to prevent the buttons and their staples from being accidentally jerked out of their respective boxes B and B^2 , when said boxes are suddenly arrested in their upward movement.

Having now fully described my invention, I claim—

1. In a machine for connecting buttons to their staples, the combination of a frame adapted to be secured to a button setting machine, a rectangular box for buttons and fasteners having its rear end pivoted to said frame and two slots in its bottom, a straight race-way for the buttons and a staple guide-plate received in said slots, and a connecting rod adjustably secured to said box substantially as described.

2. The combination of a frame adapted to be secured to a button setting machine, a straight race-way secured to said frame and having a groove in its top for the reception of the shanks of buttons, a rectangular box for buttons and fasteners pivoted at its rear end and having a slot in its bottom to receive the race-way, narrow plates d^2 secured to the front end of the race-way and extended through the front end of the frame, and a button retaining plate f above said raceway substantially as described.

3. The combination of a frame adapted to be secured to a button setting machine, a straight race-way secured to said frame and having a groove in its top, a rectangular box pivoted at its rear end and having a slot in its bottom to receive the race-way, narrow plates d^2 secured to the front end of the race-way, a button retaining plate f above said race-way, and a tuft of bristles pendent from said plate f substantially as described.

4. The combination of a frame adapted to be secured to a button setting machine, a race-way for the buttons, a box pivoted at its rear end and having a slot in its bottom to receive the race-way, and rollers i^2 on its side, a rod I pivoted to the frame and passing between said rollers, a slotted lever K in engagement with the rod I, and a horizontally movable carriage G linked to the lever K and having a cut-off plate g^3 to arrest the buttons substantially as described.

5. The combination of a frame adapted to be secured to a button setting machine, a box pivoted at its rear end to said frame and having rollers on the side, a rod I pivoted to the frame, a slotted lever K in engagement with the rod I, and a horizontally movable carriage G linked to the lever K, said carriage having a cut-off plate g^3 on top thereof, a beveled plane g and a pointed finger g^4 substantially as described.

6. The combination of a frame adapted to be secured to a button setting machine and a staple guide-plate E secured to said frame, a box pivoted at its rear end to said frame, a rod I pivoted also to said frame and connected to the side of said box a pivoted lever H having a slot at one end in engagement with the rod I and a hook at the other end, and a plate L having a segmental groove to receive the staples from the guide plate E substantially as described.

7. The combination of a frame adapted to be secured to a button setting machine and a staple guide-plate E secured to said frame, a box pivoted at its rear end to said frame, a rod I pivoted also to said frame and connected with the side of said box, a pivoted lever H having a slot at one end in engagement with the rod I and pins h^3 h^4 projecting from said lever, with pivoted latches resting upon the plate E and adapted to be lifted therefrom by said pins h^3 h^4 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EMIL CHRISTENSEN.

Witnesses:

IGNATZ WISLER,
W. S. DUSENBERRY.