F. R. WHITE.

BUTTON FEEDING MECHANISM FOR BAR BUTTON ATTACHING MACHINES.

APPLICATION FILED APR. 25, 1910.

1,079,967.

Patented Dec. 2, 1913.

3 SHEETS—SHEET 1.

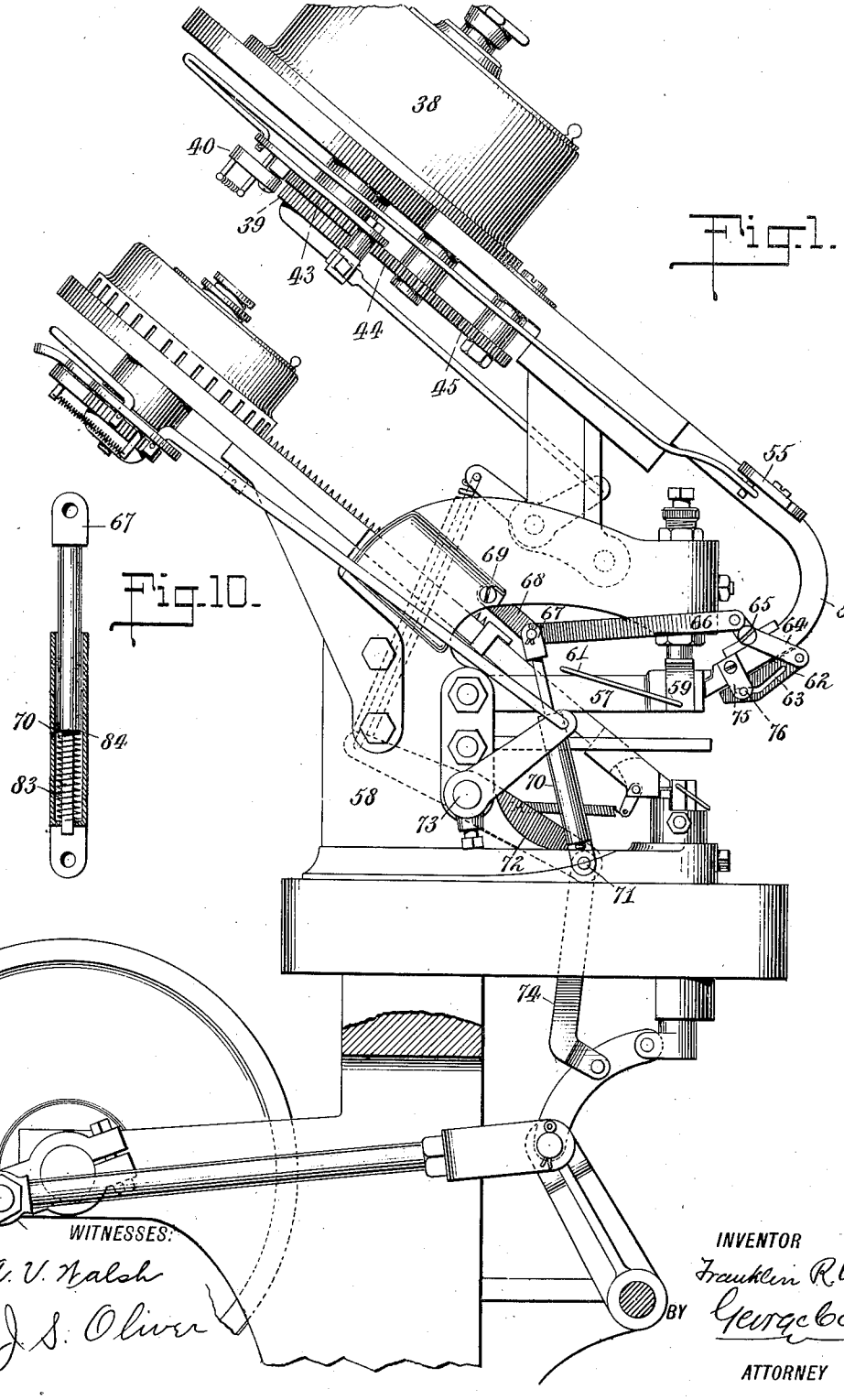


Fig. 1.

Fig. 10.

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Fig. 2.

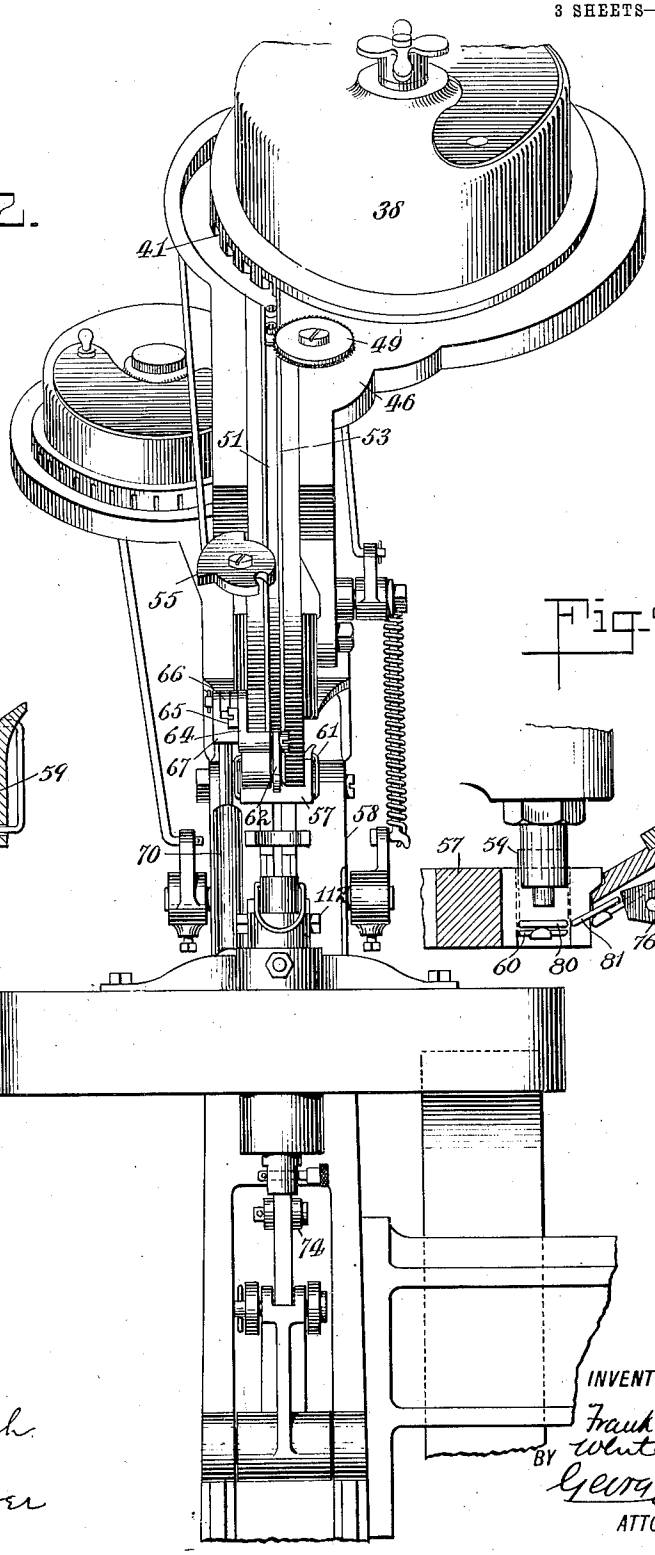


Fig. 3.

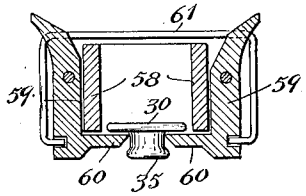


Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 5.

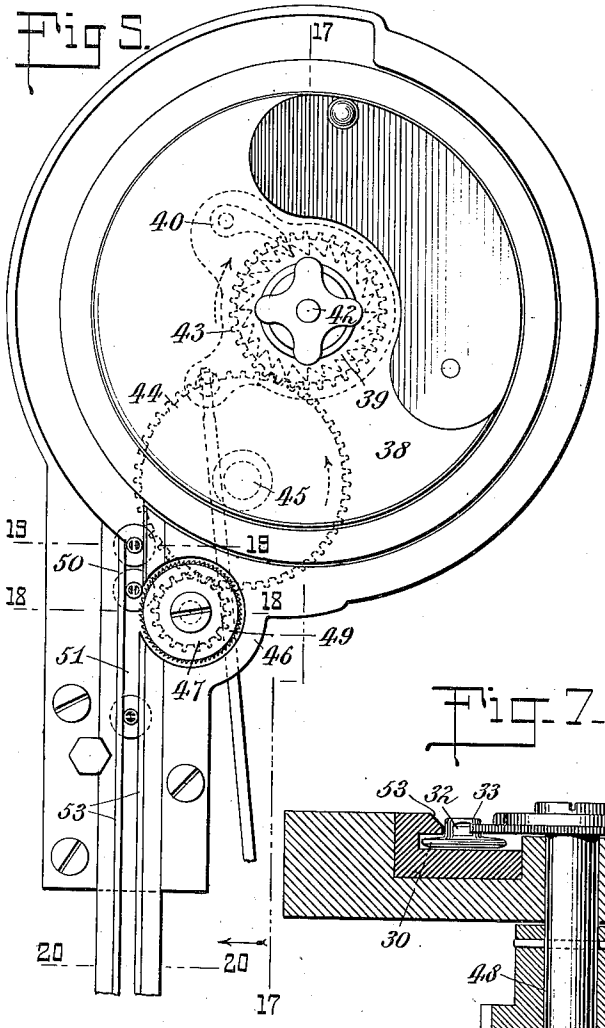


Fig. 6.

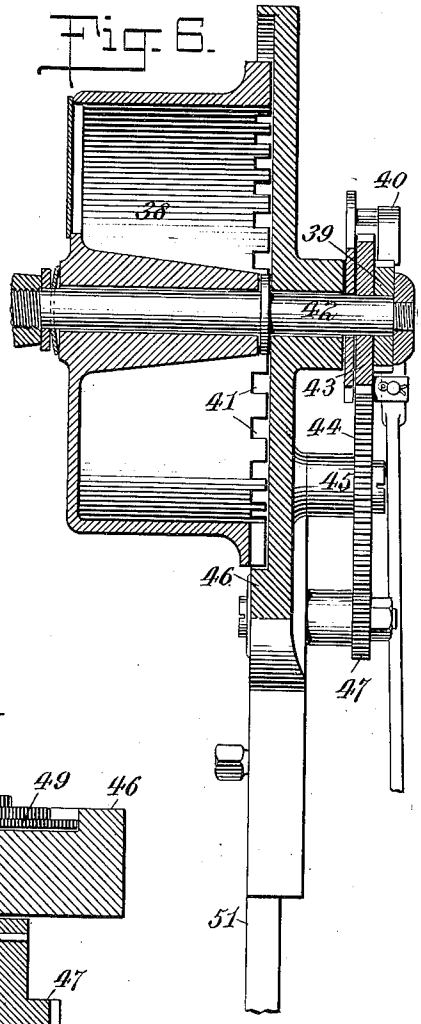


Fig. 7.

Fig. 8.

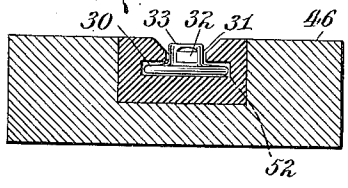


Fig. 9.

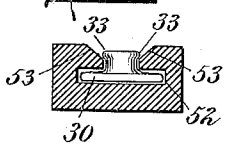
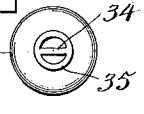


Fig. 12.



Fig. 11.



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UNITED STATES PATENT OFFICE.

FRANKLIN R. WHITE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO PATENT BUTTON COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

BUTTON-FEEDING MECHANISM FOR BAR-BUTTON-ATTACHING MACHINES.

1,079,967. Specification of Letters Patent. Patented Dec. 2, 1913.

Application filed April 25, 1910. Serial No. 557,379.

To all whom it may concern:

Be it known that I, FRANKLIN R. WHITE, a citizen of the United States, and a resident of Waterbury, in the county of New Haven and State of Connecticut, have made and invented certain new and useful Improvements in Button-Feeding Mechanism for Bar-Button-Attaching Machines, of which the following is a specification.

My invention relates to an improvement in button feeding mechanism forming a part of machines for attaching or securing buttons to cloth or fabric, the object being to so construct and devise mechanism of this character which will with certainty and precision feed a button provided with a cross bar into position such that it may be secured to a fabric by means of a two prong rivet or staple, and with this and other ends in view the invention consists in certain novel features of construction and combinations of parts as will insure the feeding of the bar-button in proper position to be attached to the cloth, and which novel features will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of a part of a button-attaching machine having my improvements applied thereto. Fig. 2 is a view in front elevation of the same. Fig. 3 is a sectional detached view of the button-holding mechanism, a button being shown in its proper position in connection therewith. Fig. 4 is a sectional view of a part of the button-feeding mechanism, and illustrating the position of several parts in case a button follows too closely the preceding one. Fig. 5 is a view in front elevation of the button hopper and a portion of the button-feeding mechanism. Fig. 6 is a sectional view of the same taken on the line 17—17 of Fig. 5, and looking in the direction of the arrow. Fig. 7 is a sectional view taken on the line 18—18 of Fig. 5. Fig. 8 is a sectional view taken on the line 19—19 of Fig. 5. Fig. 9 is a sectional view taken on the line 20—20 of Fig. 5, but showing a button in position within the track. Fig. 10 is a sectional view of the barrel containing a spring-actuated plunger employed in connection with the "tu ker." Fig. 11 is a bottom plan view of the button used in my machine, and Fig. 12 is a view showing an attaching staple in perspective.

The machine is particularly adapted for use in securing in place buttons generally known and referred to as bar buttons, that is, a button wherein the hub is constructed with a bar, around which to bend or curl the prongs of a staple. In order that the staple may with certainty and precision be locked or secured to the button, the latter must necessarily be delivered to the staple in a certain proper position, that is, with the bar of the button extending at right angles to a line drawn through the two prongs of the staple. In other words, when the two parts, that is, the staple and button, are brought together, the two prongs of the staple must enter the openings in the hub of the button, with the bar of the latter between said prongs. To insure this proper delivery of the button, I construct the latter with two flattened sides as illustrated in Figs. 7, 8 and 9, 30 representing the top or flange of the button, 31 the hub of the button, and 32 the two flattened sides of the hub, these flattened sides extending from the top of the hub to within a short distance of the lower end of the hub, thus forming the two shoulders 33, 33. Across the lower end of the hub of the button is the bar 34, formed in one piece therewith, or of a separate piece secured thereto, the hub being provided with the openings 35, 35, through which pass the prongs 36, 36 of the staple 37, illustrated in Fig. 12, this staple being constructed in any desired way, as such forms no part of my present invention.

The buttons, in bulk, are placed within the hopper 38, constructed in the ordinary way and provided with the usual ratchet 39 and pawl 40, and connected with the operative mechanism of the machine, whereby the buttons will be fed through the openings 41 formed in the hopper in the manner as is usual in this type of button setting machines. To the shaft 42 to which the ratchet 39 is secured, is also secured the gear wheel 43, meshing with the intermediate gear 44 mounted on a stud 45, one end of which is secured to the stationary plate 46. With this intermediate gear 44 meshes the gear 47 secured to and rotating with the shaft 48, the latter mounted and rotating in the plate 46. On the opposite end of the shaft 48 is

secured the locator 49, comprising a disk having a tooth or roughened periphery, as clearly illustrated in Figs. 2, 5 and 7. From the hopper 38 leads a button chute, the groove 50 in the upper portion of this chute being of such width as will permit of the hubs of the buttons to freely enter the same, as illustrated in Fig. 8. Into this wider portion 50 of the groove extends the periphery of the locating disk or wheel 49 as illustrated in Fig. 5, and below this wheel or locator, the groove or passage way in the chute is restricted as illustrated at 51, the width of the same permitting the buttons passing into the same only when their flattened sides are presented to the beveled or inclined edges of the chute, as illustrated in Figs. 5 and 9. As the hopper 38 is rotated by the operative mechanism of the machine, the locator 49, through the intervention of the gears 43, 44 and 47, will also be rotated, and contacting with the hub of the button, as illustrated in Fig. 5, will rotate the same until the flattened sides of the hub permit the same to drop into the restricted groove 51 of the chute. When in this position, the bar of the button will be crosswise with relation to the chute, and in such position is delivered to the fastening means to be hereinafter described.

The button chute having the upper widened and lower restricted passage way, is shaped as illustrated in cross section in Figs. 8 and 9, that is, with a groove or recess 52, of a sufficient size to accommodate the upper plate, top or flange 30 of the button, whereby the latter is prevented from falling out of the chute, and with the beveled edges 53, 53, over which fit the shoulders 33, 33 formed on the lower end of the hub, such formation or construction of the chute insuring against the accidental disengagement of the button therefrom, and against the turning of the button in the lower portion of the chute while on its way to the fastening mechanism.

The button after passing down the chute is engaged by the escapement 55, constructed and arranged in the usual manner to permit one button at a time to pass beyond the same, after which the button is fed by gravity around the lower curved end 56 of the chute, and delivered to the button receiver, this receiver being also constructed and arranged in the usual manner, and comprising the arm 57 pivoted at its rear end to the frame 58 of the machine, as illustrated in Fig. 1. To the forward recessed end of the arm 57 are pivoted the jaws 59 which, as illustrated in section in Fig. 3, have their lower ends provided with flanges 60, on which rests the top plate or flange of the button, the jaws being normally held in their closed positions by the spring 61, and on to which flanges the button is delivered from the lower curved end 56 of the button chute.

If for any reason the button should not be delivered from the end of the chute to the receiver, I provide what I term a "tucker" whereby to move and properly place the button between and upon the flanges 60 of the jaws 59, this "tucker" comprising a plate 62 provided with the elongated cam-slot 63. To the forward end of this plate 62 is pivoted the lower end of the bar 64, the latter near its upper end being pivoted at 65 to the lower curved end 56 of the button chute, the extreme upper end of the bar 64 being pivoted to the forward end of the connecting rod 66, the rear end of said connecting rod being pivoted to the upper end of the rod or plunger 67, and to which latter is also pivoted the forward end of the bar 68, the rear end of the latter being pivoted at 69 to the frame 58 of the machine. The rod or plunger 67 is fitted within the barrel 70, the lower end of which is pivoted at 71 to the crank arm 72, the rear end of the latter being pivoted at 73 to the frame of the machine, the forward end of the arm 72 being connected to the operating portions of the machine by means of the connecting rod 74, as illustrated in Figs. 1 and 2. To assist in guiding the tucker-plate 62 in its movement, I secure to the side of the button-chute the arm 75 provided with the pin 76 extending into the cam-slot 63.

If in operation the button has been fed down the button chute and only partially delivered into the button receiver, the forward end of the arm 72 being raised by the operating parts of the machine, through the intervention of the connecting rod 74, will raise the barrel 70 and the plunger 67, which in turn will raise the linked ends of the rods 66 and 68. In raising the linked ends of the rods 66, 68, the upper end of the rod 64 will be forced forwardly, and the lower end thereof forced rearwardly, carrying with it the tucker-plate 62, the forward end of which tucker-plate coming in contact with the button will force the same into proper position within the receiver, or in proper position upon the flanges 60 of the spring-actuated jaws 59. As the barrel and rod 67 continue to be raised, the linked ends of the rods 66, 68 will also be raised, causing the upper end of the pivot rod 64 to be drawn backwardly and the lower end thereof forced forwardly, carrying with it the tucker-plate 62; in other words, after the tucker has forced the button into proper position in the receiver, it immediately recedes therefrom. Upon the lowering of the connecting rod 74 by the operating parts of the machine, the barrel 70 and plunger 67 will be carried downwardly thereby, the parts assuming

their normal positions as illustrated in Fig. 1.

Should it happen that two buttons are fed down the chute instead of one, the one, 80, occupying its proper position within the button receiver, and the other, 81, remaining in the lower end of the button chute, as illustrated in Fig. 4, the tucker-plate 62 will come in contact with the latter button 81 and be permitted to remain in that position, as instead of the rods 66 and 68 being carried upwardly as before described by the barrel 70 and plunger 67, the barrel will be carried upwardly, the plunger 67 remaining stationary, the barrel sliding on the plunger and compressing the spring 83 located within the barrel and with which the shoulder 84 on the plunger engages. In other words, the compression of the spring will permit of the barrel sliding on the plunger, thereby avoiding the raising of the connecting rods 66, 68, and also avoiding movement of the tucker-plate 62 which would necessarily result in the distortion of the buttons, or the breaking of the parts of the machine.

From the foregoing it will be understood that I am thus enabled to insure the button and staple being properly positioned, the button being revolved by the locator 49 until in proper position to be fed down the chute into the button receiver, and in which position the bar of the button will be crosswise of the groove in the button chute; that should the button fail to properly locate in the button receiver, the "tucker" will so place or position it.

What I claim is:

1. In a button attaching machine; a button hopper; a chute leading from said hopper and along which buttons may pass, said chute having a groove the upper portion of which is wider than the lower; a rotary disk the periphery of which projects into said groove and forms a portion of the side wall thereof; and means for rotating said disk.

2. In a button attaching machine, a rotary button hopper; means for rotating said hopper; a chute leading from said hopper and along which buttons may pass, said chute having a groove the upper portion of which is wider than the lower; a rotary disk the periphery of which projects into said groove and forms a portion of the side wall thereof; and means whereby said disk is rotated from said hopper.

3. In a button attaching machine, a button hopper; a chute leading from said hopper and along which buttons may pass, said chute having overhanging sides which provide a groove the upper portion of which is wider than the lower; a rotary disk the periphery of which projects into said groove and which disk occupies a portion of one of said overhanging sides; and means for rotating said disk.

4. In a button attaching machine, a hopper, a chute leading from said hopper to a button receiver; a "tucker" connected with the lower end of said chute and adapted to move a button therefrom and into said receiver, said "tucker" comprising a reciprocating plate provided with a cam slot to guide the same into operative engagement with the button; a stationary pin engaging said cam slot; and operating mechanism for said tucker, the same including telescoping members and a spring interposed between said members and through which movement of one is communicated to the other.

Signed at Waterbury, in the county of New Haven, and State of Connecticut, this 22 day of April, A. D. 1910.

FRANKLIN R. WHITE.

Witnesses:

EDNA M. HEALEY,

KATHARINE A. RUBEY.