No. 663,694. Patented Dec. 11, 1900.

F. H. CHILTON.

MACHINE FOR SEWING ON FLAT BUTTONS.

(Application filed Nov. 18, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 2.

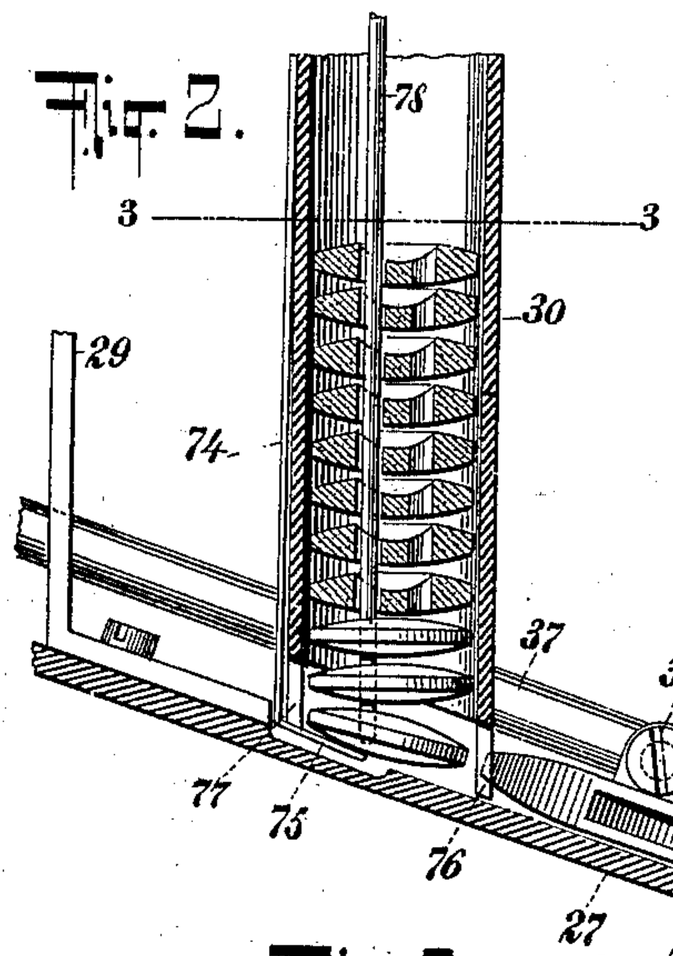

Fig. 1.

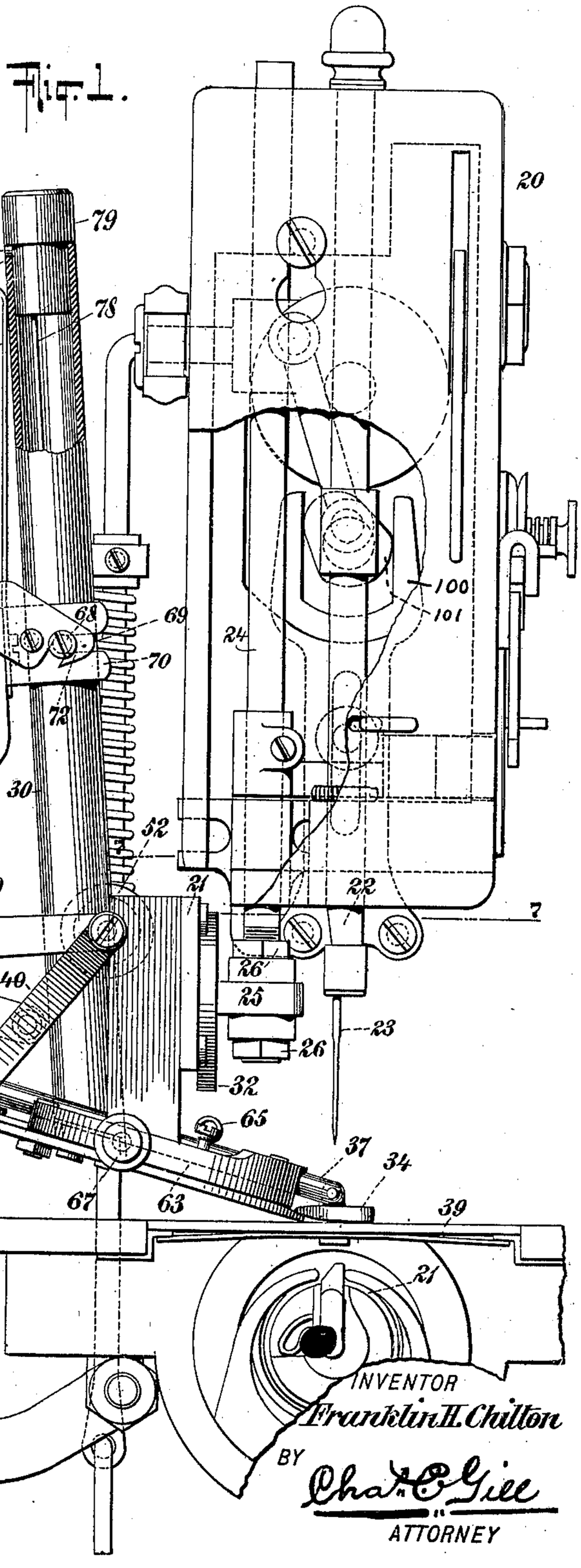

Fig. 3.

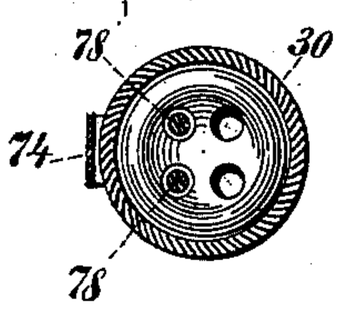

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Fig. 4.

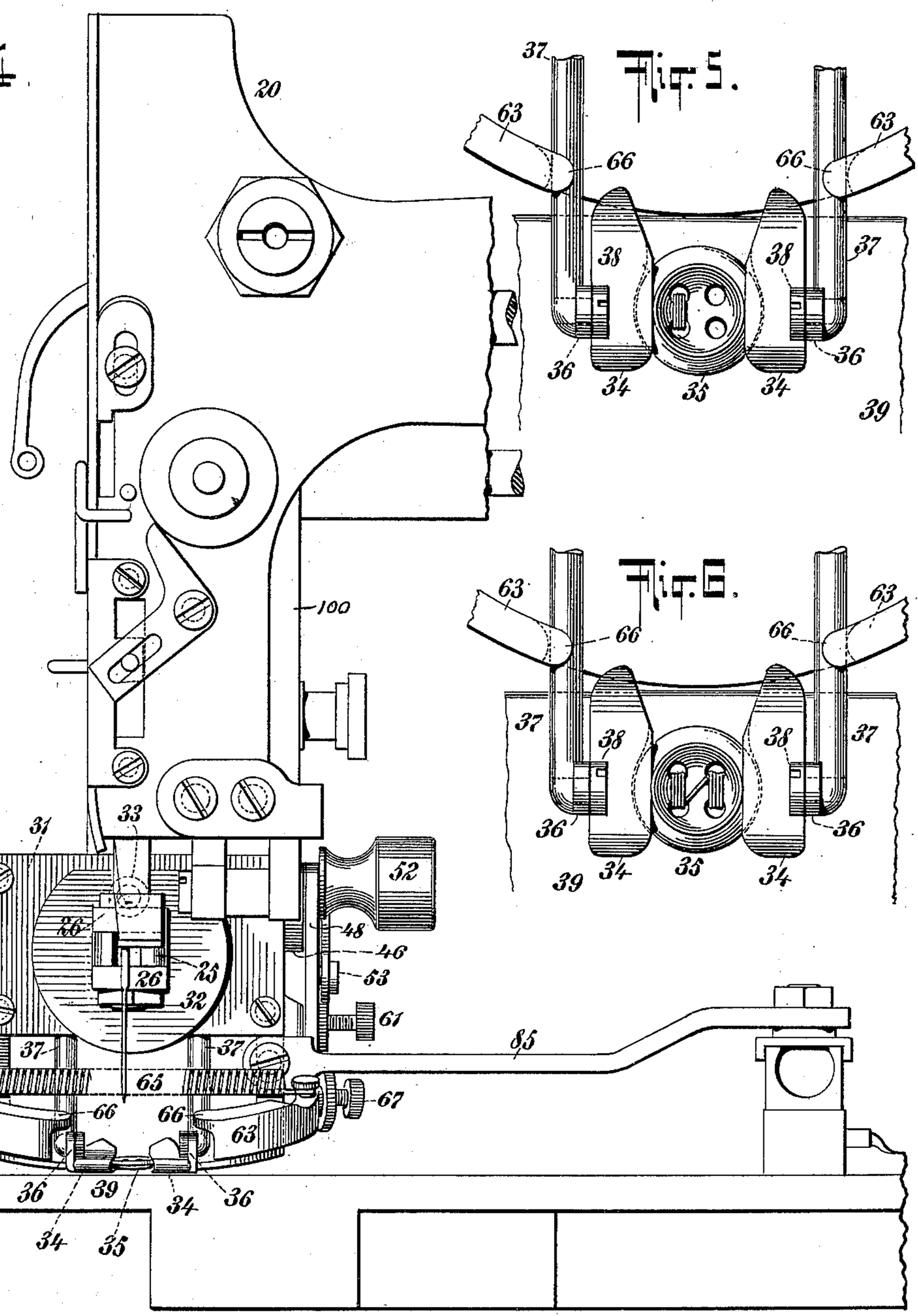

Fig. 5.

Fig. 6.

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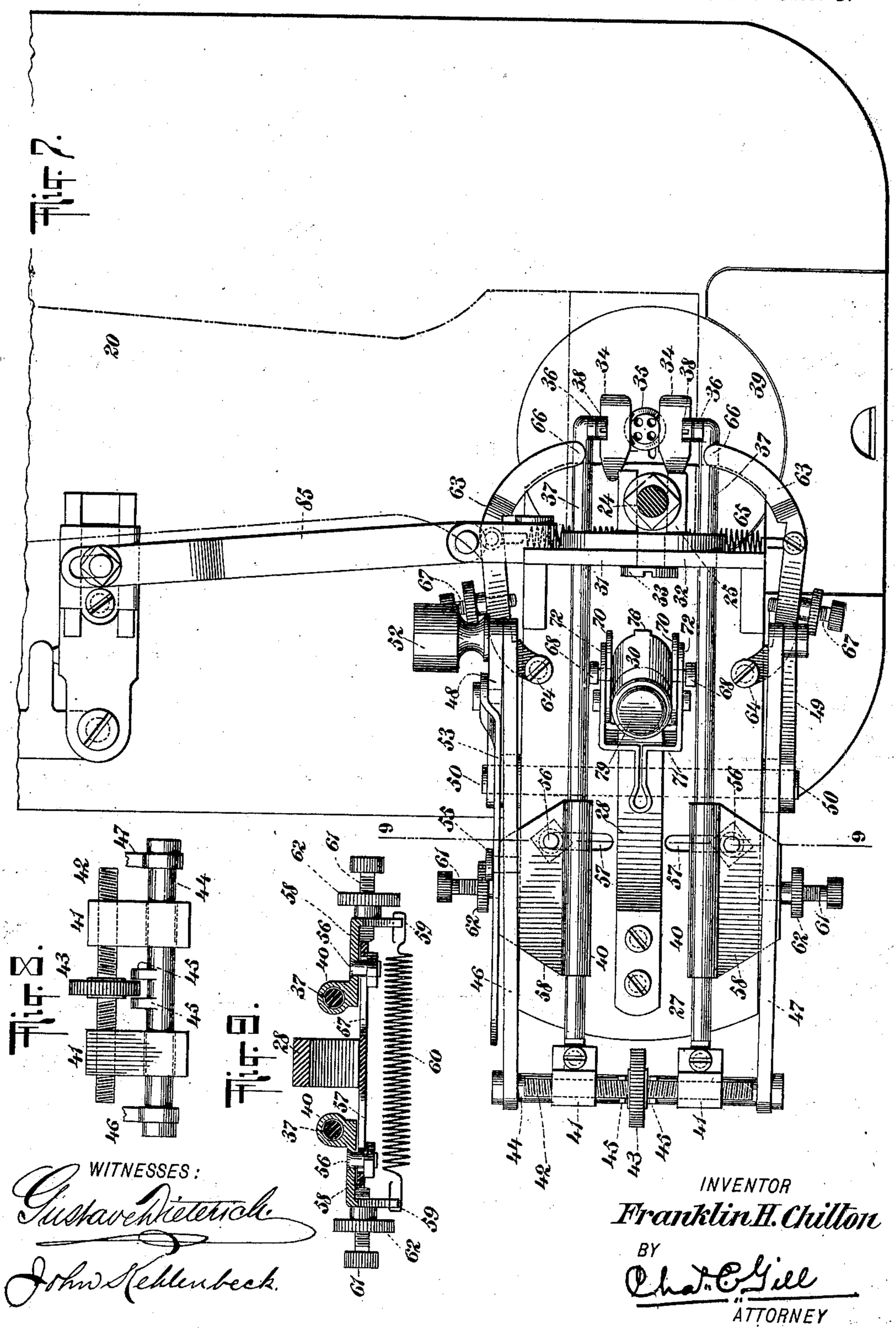

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UNITED STATES PATENT OFFICE.

FRANKLIN H. CHILTON, OF NEW YORK, N. Y.

MACHINE FOR SEWING ON FLAT BUTTONS.

SPECIFICATION forming part of Letters Patent No. 663,694, dated December 11, 1900.

Application filed November 18, 1899. Serial No. 737,386. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN H. CHILTON, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Attachments for Machines for Sewing on Buttons, of which the following is a specification.

The invention relates to improvements in attachments for machines for sewing on buttons; and it consists in the novel features and combinations of parts hereinafter described, and particularly pointed out in the claims.

I have embodied my invention in the attachment hereinafter described and claimed for application to the presser-foot of the sewing-machine, the said attachment comprising a base-plate, a pair of jaws for feeding the individual buttons to the sewing-point and there holding them while the sewing is taking place, means for operating said jaws, and means for guiding the buttons into position to be taken by said jaws with the holes of the said buttons in proper alinement, whereby said jaws are enabled to remove the buttons one after another and deliver the same to the proper point below the needle of the sewing-machine.

The attachment made the subject hereof, in addition to the features hereinbefore mentioned, comprisesse veral coöperating features for giving effect to the main parts of the attachment, and these will be fully described hereinafter in connection with the explanation of the construction and operation of the attachment.

The main features of the attachment comprise the means for properly guiding the buttons so that the holes or eyes in the same may always be in proper alinement and the means or jaws for taking the buttons one after another and moving them to position below the needle, the said jaws holding said buttons until the entire operation of sewing them upon the fabric has been effected.

In presenting the attachment in this application I have illustrated the same as applied to a well-known form and construction of sewing-machine for sewing on buttons, said attachment being connected with the presser-foot bar, so as to be raised and lowered thereby, and also connected with usual means for shifting the attachment laterally, so that after one pair of eyes or holes in the buttons have received the proper number of stitches the said attachment will move laterally, (or lengthwise of the sewing-machine head,) so as to bring the other pair of eyes or holes of the button into proper position to receive their stitches. The presser-foot bar to which the attachment is applied has, as usual, a vibratory motion which moves the attachment back and forth toward and from the operator, so that the needle may pass from one hole or eye into the other hole or eye of the buttons. The vibratory presser-foot bar and the means for moving the button-holding attachment laterally are well known in this art and are in common use on machines for sewing on buttons. It is also customary in the class of machines to which my invention pertains to employ a stop-motion and proper regulating means for automatically stopping the machine after a definite number of stitches have been sewed through the holes in the buttons. It is customary to so regulate the machines that any required number of stitches may be sewed through the holes of the button before the machine is automatically stopped, and in the present instance I contemplate the sewing of five stitches through each pair of buttonholes preparatory to the automatic stoppage of the machine. In some of the well-known machines for sewing on buttons the needle is caused to vibrate laterally, so as to pass from one hole of the button into the next adjoining hole thereof, and in machines of this character my attachment would not vibrate laterally, but only move toward or from the operator, so that after one pair of holes has received the stitches the other pair of holes could be presented to the needle. In the majority of instances, however, the machines for sewing on buttons have needles which do not have any vibratory motion, and in such machines it is necessary to vibrate the attachment so that the holes of the button may be delivered to the needle. I illustrate in the accompanying drawings a portion of one of the latter character of machines in which the needle has no vibratory motion, but is employed in connection with a rotary shuttle, and means for moving the

attachment both laterally and toward and from the operator, so that said attachment may present the holes of the button to the needle.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a front end elevation, partly broken away and partly in section, of a usual type of sewing-machine for sewing on buttons with my attachment applied to the presser-foot bar thereof, and in this figure the attachment comprising my invention is shown with the jaws which hold the button as having been moved toward the operator and to a point below the needle. Fig. 2 is a central vertical section through a portion of the attachment and illustrates more particularly the magazine for holding the buttons, the guiding means for preserving the holes or eyes of the buttons in proper alinement, and one of the jaws for removing the buttons from the lower end of the said magazine and delivering them one after another to the proper position below the sewing-needle. Fig. 3 is a horizontal section through the magazine for holding the buttons, the section being on the dotted line 3 3 of Fig. 2. Fig. 3 is presented to illustrate the two vertical rods which guide the buttons downward through the magazine and keep their holes or eyes in proper alinement. Fig. 4 is a front side elevation of a portion of the sewing-machine with my attachment applied thereto, the feeding-jaws being illustrated as holding the button below the sewing-needle. Fig. 5 is an enlarged top view of a portion of my attachment and shows more particularly the jaws for holding the button during the sewing operation and also the manner of sewing through one pair of the holes of the button. Fig. 6 is a like view of same, illustrating the position of the button when the attachment has been shifted in order that the other pair of holes in the button may be subjected to the sewing operation. Fig. 7 is a top view of the attachment comprising my invention shown in connection with a part of the sewing-machine, the latter being in section on the dotted line 7 7 of Fig. 1. Fig. 7 illustrates the parts of the attachment in position holding a button preparatory to the sewing of the same. Fig. 8 is a view of a portion of the rear end of the attachment and illustrates more particularly the adjusting-screw for adjusting the rear ends of the arms which carry the button-clamping jaws, and Fig. 9 is a vertical transverse section of same on the dotted line 9 9 of Fig. 7.

In the drawings, 20 denotes the head of a sewing-machine for sewing on buttons, said machine having the usual rotary shuttle 21, needle-bar 22, needle 23, and presser-foot bar 24, to which bar 24 the attachment comprising the present invention is secured by means of a lug 25, connected with the frame of the attachment and held upon said bar 24 between the nuts 26 26, as shown in Fig. 1, said lug 25 being bifurcated, as shown in Figs. 4 and 7, to pass upon said bar 24.

The general frame of the attachment comprises the base-plate 27, supporting all of the operative parts, the standard 28, and brace 29 for sustaining the button holder or magazine 30, and the front plate 31, to which is pivoted the plate 32, carrying the lug 25, above referred to, said plate 32 being pivotally secured upon the screw 33, Fig. 7, so as to permit the attachment to yield or turn to a limited extent under and during the lateral movement imparted thereto when it is desired to shift one pair of the holes of the button from under the needle-bar and move the other pair of holes of said button into position for sewing.

The clamping-jaws for feeding the individual buttons to position below the needle-bar and there holding them are designated by the numerals 34 34, said jaws corresponding with one another and at their facing sides being recessed, as indicated in Figs. 5, 6, and 7, to receive and bind against and hold down the opposite edges of the button, the latter being indicated at 35. The clamping-jaws 34 are formed with upwardly-extending ears 36 and are secured to the forward ends of the slide-rods 37 37 by means of screws 38, which pass through said ears 36 and into said rods 37 and pivotally hold said clamping-jaws 34, the latter being adapted through the medium of the ears 36 to have a turning or pivotal motion upon the said screws 38. The purpose of pivotally securing the clamping-jaws 34 is to enable the said jaws to follow the surfaces of the base-plate 27 and also to lie flat upon the bed-plate 39 of the machine when at their full forward position, holding the button below the needle-bar 22. The rods 37, carrying the clamping-jaws 34, extend upward toward the rear of the inclined base-plate 27 and pass through the sleeves 40, the upper or rear ends of the said rods 37 being pivotally secured to the threaded followers 41, mounted upon the adjusting-screw 42, the latter being formed with the right and left hand threads to receive said followers 41 and being provided with the thumb-wheel 43, by which, when desired, said screw 42 may be rotated. The rotation of the screw 42 is for effecting the adjustment toward or from one another of the upper or rear ends of the said rods 37. The followers or nuts 41 are internally threaded to engage the threads of the screw 42, and hence when said screw is turned the followers or nuts 41 will travel toward or from one another in accordance with the direction of the rotation of said screw. The followers 41 are loosely mounted upon the rear rod 44, (shown more clearly in Fig. 8,) which is formed with the lugs 45, whereby the thumb-wheel 32 is maintained in a central position. The followers 41 and rod 44 travel with the rods 37 during the sliding movement of the latter,

and the said rods 37 receive their sliding movement by means hereinafter to be described. The rod 44 in effect carries the rods 37, and through the rod 44 is imparted the force by which the rods 37 receive their movement. The rod 44 prevents the followers or nuts 41 from turning with the screw 42.

Upon the ends of the rod 44 are pivotally mounted the rear ends of the connecting-rods 46 47, which correspond with one another and at their front ends are pivotally connected with the upper ends of the crank-arms 48 49, which also correspond with one another, and at their lower ends are rigidly secured upon the transverse shaft 50, which extends below the base-plate 27 of the attachment, as indicated by the dotted lines in Fig. 7, said shaft 50 being mounted in suitable bearing-lugs 51, as denoted by dotted lines in Fig. 1. Upon or to the upper end of the crank-arm 48 is secured the knob or handle 52, which is to be grasped by the hand of the operator when it is desired to impart a sliding movement to the rod 44 and arms 37. The purpose of the connecting-rods 46 47 and crank-arms 48 and 49 is to enable the operator by means of the knob or handle 52 to move the rods 37 and through said rods the clamping-jaws 34. When the knob or handle 52 is pushed rearwardly, the rods 46 and 47 will be moved correspondingly in a rearward direction and will push the rod 44 rearward, said rod 44 under such action pulling the rods 37 and clamping-jaws 34 rearward. When by means of the knob or handle 52 the operator pulls the rods 46 and 47 frontward, said rods will draw the rod 44 with them and said rod 44 will push the rods 37 and clamping-jaws 34 frontward to the position in which they are shown in Fig. 7. Upon the crank-arm 48 is pivotally secured a bar 53, having at its rear end the slot 54, Fig. 1, which engages a pin or screw 55, carried by the connecting-rod 46, and the purpose of the bar 53 is to limit the throw of the rods 46 and 47 and the parts connected therewith. When the rods 46 47 have reached the limit of their forward throw and brought the clamping-jaws 34 into operative position for holding the button for sewing, as shown in Fig. 7, the pin 55 will have reached the front end of the slot 54 and prevent any further motion in that direction of the rods 46 and 47 and clamping-jaws 34, and when the rods 46 and 47 are moved rearward to the full extent desired the pin 55 will reach the rear end of the slot 54 and stop any further rearward motion of the rods 46 and 47 and clamping-jaws 34. The bar 53, having the slot 54, is thus a means for limiting the forward and rearward motion of the clamping-jaws 34, it being necessary to arrest the clamping-jaws 34 at their front position in order that the button may be properly below the needle, and it also being necessary, or at least desirable, that the clamping-jaws 34 may be limited as to their rearward motion, since at the termination of their rearward motion it is desired that said jaws shall clamp the lower button in the magazine or button-holder 30 preparatory to moving the same forward at the proper time to the point of sewing.

The sleeves 40 serve to guide the rods 37 during their forward-and-backward sliding motion, and since said rods 37 have a limited oscillatory motion toward or from one another the said sleeves are movably secured by screws 56, which pass upward through the slots 57 in the base-plate 27 and into the plates 58, connected with said sleeves 40, said sleeves 40 being preferably formed integrally with the plates 58, as shown. The screws 56 hold the plates 58 down against the base-plate 27, but in conjunction with the slots 57 permit said plates 58 to move toward and from one another under and during the oscillatory motion of the rods 37. The plates 58 have downwardly-extending ears 59 at their outer edges, said ears turning downward at the sides of the base-plate 27, as more clearly shown in Figs. 1 and 9, and being connected by the spring 60, which imparts, through said ears 59, to the plates 58, sleeves 40, and rods 37 a yielding tension toward one another. The extent of the movement of the plates 58 toward one another may be regulated at will by means of the set-screws 61, which extend through the ears 59 and contact with the outer vertical edges of the base-plate 27. The points of the screws 61 serve as stops, contacting with the edges of the base-plate 27 to prevent undue movement toward one another of the plates 58 and sleeves 40. Since the attachment is intended to handle buttons varying in size, the rods 37, plates 58, and followers 41 are made capable of adjustment to adapt the attachment for buttons varying in size. The followers 41, as above described, may be correspondingly adjusted by means of the screw 42, and from the description hereinbefore presented it will be seen that the plates 58, carrying the sleeves 40, may be adjusted by means of the screws 61. The screws 61 will preferably be provided with jam-nuts 62, of well-known form, for the purpose of locking the screws 61 in set position.

From the description hereinafter presented it will be seen that the main purpose of the spring 60, connecting the plates 58, and through said plates the rods 37, is to cause the clamping-jaws 34 to properly grasp the button at the lower end of the magazine or button-holder 30 and remove said button. Hence the spring 60 will impart the proper pressure toward one another of the clamping-jaws 34 when the latter are to grasp the button. If buttons smaller in size than the one indicated in Fig. 7 are to be handled by the attachment, the followers 41 would be moved a little nearer toward one another, and the screws 61 would be moved outward correspondingly, so that the plates 58 and rods 37 might normally lie a little closer to one another, and the clamping-jaws 34 be thereby brought into such re-

lation as that they might firmly grasp the button of the smaller size.

It is desirable that when the clamping-jaws 34 are in their forward position holding the button below the needle-bar the said jaws should be firmly held against the opposite edges of the button, and to this end I provide upon the forward portion of the base-plate 27 the pivoted presser-arms 63 63, which, as illustrated in Fig. 7, are secured to the base-plate 27 by means of the screws 64, and thence extend forwardly of said base-plate to a position permitting them to engage the outer portions of the rods 37. The presser-arms 63 are connected by a spring 65, and at their ends the said arms are provided with the lips 66, which are adapted to extend over the upper surface of the rods 37, and thereby prevent said rods from elevating under any force imparted by the ascending needle during the operation of sewing. The spring 65 imparts a yielding tension to said arms 63, pulling them toward one another and at the proper time against the rods 37, as indicated in Fig. 7, whereby the clamping-jaws 34 are caused to firmly hold the button 35 during the sewing operation. When the clamping-jaws 34 are at their rearward position adjacent to the button magazine or holder 30, the presser-arms 63 will approach one another to the extent permitted by the adjusting-screws 67, said screws forming adjustable stops for engaging the edges of the frame of the attachment and limiting the movement toward one another of the presser-arms 63. When the clamping-jaws 34 are moving toward their rearward position and the rods 37 recede from the presser-arms 63, the said arms approach one another, and when said jaws, with the button between them, are moved forward to the point of sewing the rounded outer ends of the rods 37 move against the forward ends of the arms 63 and press them outward in a direction from one another, whereby said arms 63 are caused to exert pressure against said rods 37 and impart to the clamping-jaws 34 the proper binding action against the button 35. The screws or stops 67 are made adjustable, so as to adapt the attachment for buttons varying in size. It will be understood from what has been said hereinbefore that the rearward and forward movements of the clamping-jaws 34 and rods 37 are effected by manual operation, the operator taking hold of the knob or handle 52 to effect such movements. When the clamping-jaws 34 and rods 37 are moved rearward, they pass from under the influence of the presser-arms 63, but remain under the pressure of the spring 60. The clamping-jaws 34 and rods 37 only receive the pressure of the spring 65 and arms 63 when the rods 37 are moved to their forward position to enable the jaws 34 to hold the button below the needle-bar.

The button holder or magazine 30 is in the form of a vertical tube or receptacle adapted to receive a number of the buttons, said buttons being placed one upon the other, as indicated in Fig. 2. The holder 30 has upon its opposite sides trunnions 68, adapted to pass into the slots 69 of the frame 70, carried at the upper end of the supporting-standard 28. Upon the frame 70 is pivotally mounted a frame 71, having hooks 72 to pass downward upon and engage the trunnions 68 when the latter are in position within the said slots 69, the purpose of the hooks 72 being to retain the trunnions 68 within said slots 69 and to cooperate with the frame 70 in forming a bearing for said trunnions to permit a limited oscillatory motion of the holder 30. The frame 71, having the hooks 72, also serves to detachably hold or secure the holder 30 in position. When the holder 30 has been emptied of its buttons, it should be removed and refilled, and at such time the frame 71 will be turned so as to relieve the hooks 72 from the trunnions 68, thus leaving the holder 30 free to be withdrawn by hand. The holder or magazine 30 bears at its upper portion against a plate-spring 73, which is secured to the upper end of the standard 28 and the purpose of which will appear hereinafter. The lower portion of the holder or magazine 30 is provided at its rear side with a spring 74, which is secured at its upper end to the side of the magazine and at its lower end is bent under the magazine to form a finger 75, (see Fig. 2,) which extends below the buttons and forms a yielding support for the same. The lower end of the holder or magazine 30 at its front side has a central finger 76, which normally extends substantially down to the upper surface of the base-plate 27, and at its rear side the said lower end of the holder or magazine 30 has a similar finger 77. The fingers 76 and 77 serve to retain the button at the lower end of the holder or magazine 30 substantially in alinement with the buttons in the upper portion of said holder 30, and the finger 77 serves as a backing to prevent the bottom button from being pushed rearward unduly when the clamping-jaws 34 recede rearward and pass against the sides of the same. The front finger 76 will always prevent the bottom button from moving forward until forced in that direction by the clamping-jaws 34. The base-plate 27, as shown in Fig. 2, is slightly recessed to receive the supporting-finger 75 when the latter is moved downward by the act of pulling the button by means of the jaws 34 from the holder 30. When the jaws 34, grasping the bottom button, are moved forward, they will pull the lower button against the front finger 76 of the holder 30 and turn said holder slightly forward at its lower end to a sufficient extent to permit the said button to leave the holder. The forward motion of the lower end of the holder 30 is permitted by reason of the fact that said holder is mounted upon the trunnions 68 and that the upper portion of the said holder may turn rearwardly against the yielding spring 73. After the jaws 34, carrying the bottom but-

ton, have passed sufficiently forward for the button to have left the lower end of the holder 30 the spring 73, acting against the upper part of the holder 30, will restore said holder to its normal substantially vertical position shown. The opposite sides of the lower end of the holder 30 are cut away, (thereby forming the fingers 76 and 77,) so that the jaws 34 may readily pass upon and engage the opposite edges of the bottom button without obstruction. One of the main features of the holder 30 is the employment of the guide-rods 78, upon which the buttons are strung, as shown in Figs. 2 and 3, and which at their upper ends are connected with a cap 79, fitting the upper end of the holder 30 and prevented from turning axially therein by means of a slight projection 80 thereon entering a recess 81 in the holder, as shown in Fig. 1. The projection 80 on the cap 79 and the recess 81 in the top of the holder 30 serve also to guide the operator in placing the cap and rods 78 properly within the holder 30. In the present instance the buttons shown have four holes or eyes, and hence in the attachment shown I employ two of the guiding-rods 78, so that the buttons cannot turn axially within the holder 30 nor get their eyes out of alinement with one another. The lower ends of the guide-rods 78 are free to permit the escape of the buttons one after another therefrom; but at their upper end said guide-rods are held rigidly by the cap 79. I prefer to fill the magazine or holder 30 with buttons when said magazine is detached from its supporting-frame 70, and in carrying out this feature of the operation I remove the cap 79 and guide-rods 78 from the holder 30 and string the buttons upon said rods 78, and I thereupon slip the holder 30 upon the buttons thus strung upon the rods 78 and then restore the holder containing the buttons and guide-rods to the supporting-frame 70, there locking it by means of the hooks 72. If the buttons to be sewed upon the fabric only possessed two eyes, I could still use the two guide-rods 78, or I could dispose of one of the rods and only use the other rod, since the holder 30 would prevent the buttons from turning axially upon the rod. I regard the employment of the guide or guides engaging the holes of the buttons as one of the important features of my present invention, since by means thereof the buttons are mechanically guided to the clamping-jaws, by which they are removed to the point of sewing, and this portion of my invention is not limited to the special details of the construction described and shown.

Operation: The operation of the attachment hereinbefore described will in large measure be understood from the explanation already given. The attachment will be secured in the machine presented to the presser-foot bar 24, and in the usual manner said bar 24 will be raised and lowered by the foot-treadle (not shown) in order that the fabric or work may be inserted and removed from below it at will. It may be assumed for purposes of explanation that the fabric has been placed below the attachment and that the presser-foot 24, carrying the attachment, has been lowered thereupon. The operator will then by means of the knob or handle 52 move the rods 46 47 and rods 37, with their intermediate connections, rearward in order that the clamping-jaws 34 may be carried upon the opposite sides of the bottom button in the holder or magazine 30. When the jaws 34 reach said button, the button will force said jaws apart, and said jaws will be caused to bind against the button by reason of the spring 60 connecting the plates 58 and exerting its pressure against the rods 37. After the jaws 34 have passed upon the bottom button the operator will then reverse the motion of the knob or handle 52 and rods 37, and thereby cause the clamping-jaws 34 to move frontward to a point below the sewing-needle, said jaws 34 during this motion pulling the button then between them out from the lower end of the holder or magazine 30 and carrying the same to proper position below the needle-bar. After the jaws 34 have carried the button 35 below the needle-bar to the position shown in Fig. 7 the operator will then by pressing on the proper foot-treadle (not shown) set the machine in motion. The machine having been set in motion, the needle will then operate to sew through one pair of the holes of the button, as shown in Fig. 5, the presser-foot bar 24 and the button-holding attachment in its entirety being vibrated in the usual manner with this class of machines, so that the needle will first descend through one of said holes and then through the other thereof and then down through the first hole until the proper number of stitches have been formed, whereupon the attachment will be moved laterally of itself, but longitudinally of the base-plate of the sewing-machine, so as to bring the other pair of holes of the button into position to be sewed through by the needle, the attachment and presser-foot bar again vibrating so that the needle may, as before, pass from one hole to another until the proper number of stitches have been formed, as illustrated in Fig. 6. After the stitches have been formed in the requisite number the machine will automatically stop, and the operator, elevating the presser-foot bar, will by pulling on the fabric to which the button has been sewed pull the button from the clamping-jaws 34 and move the fabric along to the next point at which the button is to be sewed. The operator will then repeat the above-described operation, lowering the attachment upon the fabric or work, moving the jaws 34 rearward to clasp another button and then frontward to transport the button to the fabric, and then again set the machine in motion for sewing on the additional button. This operation will be continued until all of the buttons in the holder 30 have been sewed upon the fabric, and then the op-

erator will remove the holder 30 and refill the same and restore it to the attachment, whereupon the work of sewing on the buttons may be continued.

The operator may be supplied with a number of holders 30, all filled with the buttons, so that she may not have to stop her work to fill the one holder 30 every time it becomes emptied. It will be seen that the fingers of the operator are not required for adjusting or holding the buttons, the mechanism described rendering it entirely convenient to operate the jaws by means of the knob or handle 52 to take the buttons one after another from the holder 30 and transport them in proper position below the sewing-needle, said jaws firmly holding the button during the sewing operation. The means for effecting the lateral vibration of the attachment so that after one pair of the holes in the button have been sewed the other pair may be presented to the needle are well known in this art, and in Figs. 4 and 7 I illustrate the usual connecting-rod 85, through which the vibratory motion is communicated to the attachment, said rod 85 being pivotally secured to the attachment at one end and at the other end being connected with the usual mechanism of the sewing-machine for moving it after the correct number of stitches have been sewed through one pair of the holes of the button.

The sewing-machine illustrated is a well-known type of machine both as to its vibratory presser-foot bar 24 and vibratory connection 85. The attachment is not, however, limited to the character of machine shown, since in the machines in which the needle itself has a vibratory motion for moving from one hole of the button to another hole thereof the attachment holding the button will not have to vibrate back and forth for each pair of the holes of the button, but will simply move laterally after one pair of the holes or eyes of the button have been sewed in order to present the other pair of eyes or holes of the button to the needle. In the event of the buttons only having two holes and the sewing-machine having the vibratory needle it will not be necessary that the attachment have any vibratory motion either laterally or longitudinally, since in that event the vibratory needle will pass through the two eyes of the stationary button, the latter being held by the clamping-jaws 34. Thus it will be seen that the invention is not confined to any special type of machine for sewing on buttons, but is meant for application to any machine for sewing on buttons, the purpose of the attachment being to properly feed the buttons to the sewing-point and there securely hold them. One of the most important objects attained by my invention is the proper supplying of the buttons to the clamping-jaws in a manner to insure the holes or eyes of the buttons coming into proper position to receive the needle, and in accordance with my invention the buttons are guided by means which engage the buttons and prevent them from shifting or carrying their eyes out of proper alinement. In accordance with my invention the buttons are positively guided to the point where they are taken by the clamping-jaws and are held until the clamping-jaws take them and move them without change as to the position of the eyes or holes to the point where the buttons are to be sewed upon the fabric. While the holder 30 is substantially in a vertical position, it inclines slightly, so that its lower end projects slightly forward of its upper end, and thus the front edge of the buttons as they reach the lower end of the holder may tilt downward, as shown in Fig. 2, so as to come into alinement with the facing sides of the clamping-jaws 34. When buttons having only two holes are to be sewed upon the fabric, both of the guiding-rods 78 may be employed, or only one of the said rods may be employed, and likewise when buttons having four holes are to be sewed upon the fabric both of the guiding-rods 78, or only one of the said rods, may be employed, since when only one rod is employed, it being out of central alinement through the buttons, the latter are prevented from turning axially about said rod by reason of the contact of the edges of the buttons with the walls of the holder 30. The holder 30 is shown as being in the form of a tube with all of its sides fully closed; but it is obvious that the tube may be slotted or made in the form of an open frame in order that the operator may see the buttons and determine what quantity of buttons are left in the tube at any special time. The holder 30 is useful in guiding the edges of the buttons, especially when only one rod or guide 78 is employed; but when two rods 78 are employed for passing through the pair of holes of the button the said rods alone will serve to keep the buttons with their holes in alinement with one another. I recommend, however, that some form of holder 30 be employed to engage the exterior edges of the buttons, since thereby less danger of accident or the disarrangement of the buttons is incurred.

In the machine shown the means for operating the presser-foot bar 24 to vibrate the attachment comprise the pivoted forked lever 100, which at its lower end is connected with said bar 24 and at its upper end receives and is oscillated by the cam 101.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A button-holding attachment for machines for sewing on flat vertically-apertured buttons, said attachment comprising the magazine or holder for holding a number or column of the buttons, and means within said magazine for engaging and preserving the holes of the buttons in proper alinement, combined with movable clamping-jaws for grasping the buttons, one after another, at their side edges at the said magazine and moving the same to the point of sewing and

there holding them, and means for operating said clamping-jaws; substantially as set forth.

2. The base-plate, the substantially horizontally disposed clamping-jaws for holding the flat buttons at their side edges, and means for moving said jaws between the source of button-supply and the point at which the buttons are to be sewed upon the fabric, combined with means for supplying the flat vertically-apertured buttons to said clamping-jaws when the latter are in their receded position, springs for yieldingly pressing said jaws against the side edges of the buttons at the point of button-supply, and springs for exerting a yielding pressure against said jaws when the latter are in their forward position so that they may firmly hold the buttons with their apertures in vertical plane while they are being sewed; substantially as set forth.

3. The button holder or magazine for holding a number or column of flat buttons, and means within said magazine for guiding the buttons and entering the eyes or holes thereof so that the eyes or holes of said column of buttons are kept in proper alinement, combined with the clamping-jaws for removing the buttons, one after another, from said holder and delivering them at the point at which said buttons are to be sewed upon the fabric, means for actuating said clamps to travel between said button-holder and said fabric, and springs for exerting a yielding pressure against said jaws to cause them to yieldingly but firmly grasp and hold the buttons; substantially as set forth.

4. The button-holder adapted to contain a number of the buttons, said holder being open at the opposite sides of its discharge end and being provided at said end with a retaining-finger for the buttons, combined with the clamping-jaws for grasping the buttons, one after another, at said holder and removing them to the point of sewing, means for imparting to said clamping-jaws their movement from said holder to said point of sewing, and means for pressing said clamping-jaws against the opposite edges of the button so that it may remove the same from said holder and then hold the same during the sewing operation; substantially as set forth.

5. The button-holder adapted to contain a number of the buttons, and the guide-rods within said holder and passing through the holes of the buttons, said rods being free at their lower ends to permit of the escape of the buttons, one after another, combined with the clamping-jaws for removing the buttons from the lower end of said holder and delivering the same at the point of sewing, means for imparting to said clamping-jaws their movement from said holder to said point of sewing, and means for yieldingly pressing said clamping-jaws toward one another so as to effect the proper binding action of said jaws upon the opposite edges of the buttons; substantially as set forth.

6. The base-plate, the button-holder pivotally supported above the same and adapted to yield forward slightly at its lower end, the spring normally serving to maintain said holder in its normal position, and the spring-support for the buttons at the lower open end of the said holder, combined with the clamping-jaws for moving the buttons, one after another, from the lower end of the said holder to the point of sewing, means for actuating said jaws to perform their movement, and means yieldingly pressing said jaws toward one another so as to effect their proper binding action upon the buttons; substantially as set forth.

7. The base-plate, the button-holder detachably secured above said plate and adapted to contain a number of the buttons and permit the escape of the same, one after another, at its lower end, and means for keeping said buttons in proper alinement, combined with the clamping-jaws for removing said buttons, one after another, from said holder and delivering the same to the point of sewing, means for actuating said jaws to perform their movement from said holder to said point of sewing, and means for pressing said jaws against the buttons so that the latter may be firmly held both during transit and while being subjected to the sewing operation; substantially as set forth.

8. The button-holder adapted to contain a number or column of the flat vertically-apertured buttons and permit their escape, one after another, from its lower end, combined with the clamping-jaws, means for moving said jaws from the lower end of said holder to the point of sewing, and springs for yieldingly pressing said jaws toward one another so that when said jaws pass upon the button exposed at the lower end of said holder they will grip the opposite side edges of same and on their forward movement will carry the same to the point of sewing and there hold it during the sewing operation; substantially as set forth.

9. The button-holder adapted to contain a number or column of flat vertically-apertured buttons and permit of their removal, one after another, combined with the substantially horizontal clamping-jaws recessed on their facing edges to grasp the opposite side edges of the buttons, means for moving said jaws against the side edges of the individual buttons in said holder and then forward to the point of sewing, and springs for yieldingly pressing said jaws against the buttons; substantially as set forth.

10. A button-holding attachment for machines for sewing on flat vertically-apertured buttons, said attachment comprising the magazine or holder for holding a number or column of the buttons, and means for engaging the apertures in said buttons to present said buttons with their apertures in proper alinement, combined with means for taking the buttons, one after another, at the said

magazine and moving the same to the point of sewing and there holding them during the sewing operation; substantially as set forth.

11. A button-holding attachment for machines for sewing on buttons, said attachment comprising the base-plate, the two rods upon which the buttons may be strung and permitted to descend toward said base-plate, and means for supporting said rods, combined with means for removing the buttons, one after another, from the lower end of said rods and delivering them to the point of sewing; substantially as set forth.

12. The base-plate, the magazine for the buttons, and the guide-rod supported therein and upon which rod the buttons may be strung and permitted to descend toward said base-plate, combined with means for removing the buttons, one after another, from the lower end of said magazine and rod and delivering them to the point of sewing; substantially as set forth.

13. The base-plate, and the tubular frame or holder for the buttons, and the guide-rods within said holder and upon which the buttons may be strung and descend by gravity toward said plate, combined with the clamping-jaws to take the buttons, one after another, from said rods and deliver them to the point of sewing, means for yieldingly pressing said jaws toward one another so that they may firmly hold the buttons, and means for moving said jaws intermediate said rods and said point of sewing; substantially as set forth.

14. The clamping-jaws for grasping the opposite side edges of the flat vertically-apertured buttons and moving them from the point of button-supply to the point of sewing, and means for moving said jaws intermediate said points, combined with means for feeding the flat buttons with their apertures in vertical plane to a point at which said jaws may pass upon their side edges and grasp them, and means engaging the vertical eyes of said buttons for keeping said eyes in proper alinement until they are taken by said jaws; substantially as set forth.

15. In an attachment for machines for sewing on flat vertically-apertured buttons, the clamping-jaws for holding at their side edges the individual buttons while they are subjected to the sewing operation, combined with means entering the vertical eyes of said buttons for delivering the buttons with their eyes or holes in proper alinement to a position where they may be grasped by said jaws; substantially as set forth.

16. The base-plate, the button holder or magazine having the trunnions, the frame having the slots to receive said trunnions and afford a bearing for the same, the hooks to removably hold said trunnions, and means for guiding the buttons on their passage through said holder, combined with the clamping-jaws for grasping the buttons and removing them from the lower end of said holder to the point of sewing, and means for operating said jaws; substantially as set forth.

17. In an attachment for machines for sewing on flat vertically-apertured buttons, the clamping-jaws for holding at their side edges the individual buttons while they are subjected to the sewing operation, combined with means entering the vertical eyes of said buttons for delivering the buttons with their eyes or holes in proper alinement to a position where they may be grasped by said jaws, springs for yieldingly pressing said jaws toward one another, and means for positively limiting the movement toward one another of said jaws; substantially as set forth.

18. The base-plate, the plates 58 thereon and having the sleeves 40, the spring connecting said plates 58, the rods 37 passing through said sleeves, the clamping-jaws 34 connected with the front ends of the said rods 37, the screw 42 at the rear of said base-plate and having the followers 41 to which said rods 37 are pivotally secured, the rod 44 connected with said followers, and lever mechanism connected with said rod 44 for imparting a sliding movement to said rods 37, combined with the button-holder supported above the said base-plate and adapted to contain a number of buttons and permit the withdrawal, one after another, of the same, and the presser-arms 63 pivotally secured to said base-plate and connected by a spring, the forward ends of the said presser-arms being adapted to engage the forward portion of the rods 37 and maintain the grip of said jaws upon the button during the sewing operation; substantially as set forth.

19. The base-plate, the pivotally-mounted rods 37 adapted to have a sliding movement thereon, the clamping-jaws carried at the front ends of the said arms, and means for moving said rods and jaws between the point of the button-supply and the point of sewing, combined with the presser-arms 63 adapted to engage the forward portions of said rods 37, the spring connecting said presser-arms and causing them to yieldingly press against said rods 37, and the button-holder adapted to contain a number of the buttons and permit the withdrawal of the same, one after another, by said jaws; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 17th day of November, A. D. 1899.

FRANKLIN H. CHILTON.

Witnesses:
CHAS. C. GILL,
GUNDER GUNDERSON.