

W. L. BARRON AND W. D. MICHENER.
 BUTTON SEWING MACHINE.
 APPLICATION FILED APR. 30, 1917.

1,366,109.

Patented Jan. 18, 1921.

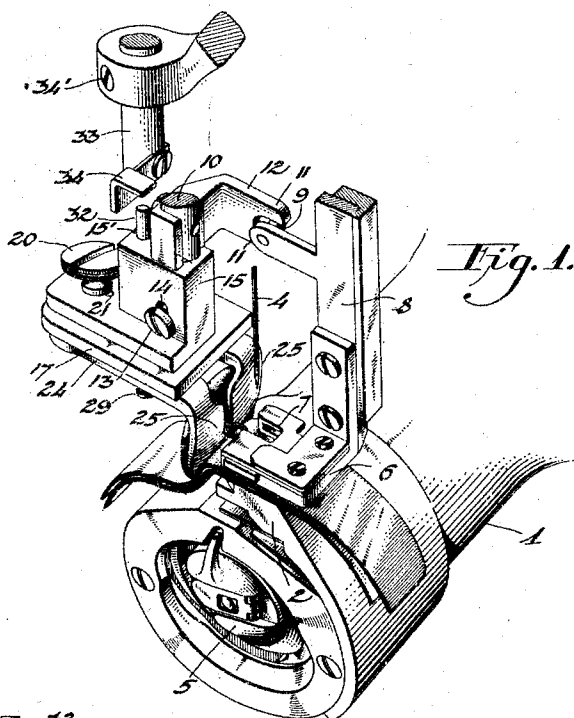


Fig. 1.

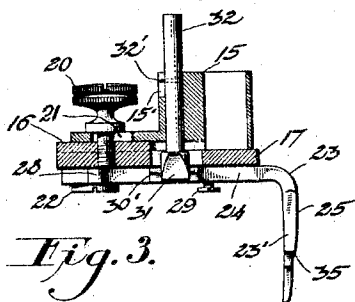


Fig. 3.

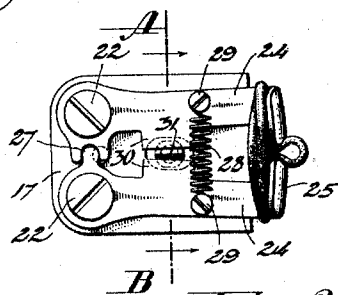


Fig. 2.

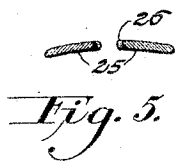


Fig. 5.

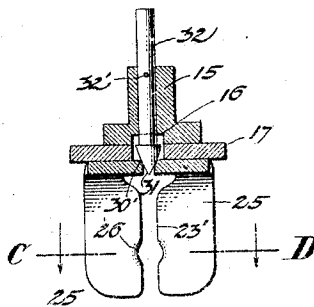


Fig. 4.

WITNESS:

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BUTTON-SEWING MACHINE.

1,366,109.

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To all whom it may concern:

Be it known that we, WILLIAM L. BARRON and WAYLAND D. MICHENER, citizens of the United States, residing, respectively, at New York, in the county of New York and State of New York, and Roselle Park, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Button-Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an article attaching device in general and in particular to a sewing machine for securing buttons to a garment, being an improvement of the construction disclosed in an application of W. L. Barron & F. E. Osol, Serial No. 112,906, filed August 3, 1916, which has since become Patent No. 1,240,921, granted September 25, 1917.

Heretofore in machines for sewing on buttons, similar to that disclosed in the above mentioned application, the clamp for holding the button has been arranged to grip the body of a button peripherally or on opposite sides of the body or both. It not infrequently happens that the shanks of buttons, especially military buttons with a wire eyelet, are off center or eccentric to the body of the button but the previous constructions are not commercially suitable for holding an eccentric shank button with its aperture in register with the needle. In the present invention the clamp is so organized that it grips the shank only of the button and holds the eye properly in the path of the needle whatever may be the disposition of the shank on the body of the button. In this way the objectionable needle breakage and waste of buttons occurring with the use of clamps heretofore in use is avoided.

The invention is also characterized by an extreme simplicity of construction and operation which will appear in the following description of the invention, the preferred embodiment of which is illustrated in the accompanying drawings, in which Figure 1

is a perspective view of the clamp and adjacent mechanism in relative operative position on the end of a tubular arm machine, only such parts being shown as are necessary to show its connection with what has gone before. Fig. 2 is a bottom plan view of the clamp *per se*. Fig. 3 is a longitudinal section. Fig. 4 is a vertical section on the line A—B, Fig. 2, looking in the direction of the arrows and Fig. 5 in a cross section on the line C—D, Fig. 4, through the notches.

On the free end of a tubular arm 1 a raised work-supporting portion 2 is arranged in any suitable manner and provided with a transversely arranged slot (not shown) for permitting a vibratory needle 4 to coöperate in the formation of stitches with a loop-taker 5 arranged beneath the work-supporting portion 2 within the tubular arm.

A presser-foot 6 also having an open-ended slot 7 registering with that in the work-supporting portion 2 is arranged above the same. A bar 8 extends upward from one side of the foot 6 and is provided with a friction-roller 9 embraced loosely by the prongs 11 of a horizontally extending forked arm 12 secured to the presser-bar 10 in any suitable manner. The prongs 11 are spaced apart sufficiently to permit a limited upward movement of the presser-bar before elevation of the presser-foot in order that trimming mechanism (not shown), which is actuated through the presser-bar and in part carried by the presser-foot, may be given its operative movements after a button has been stitched in place.

Adjustably secured to the lower end of the presser-bar 10 by a screw 13 and slot 14 is a block 15 to the bottom of which is tongue-and-grooved, as indicated at 16, a plate 17. A thumb-screw 20 tapped into the plate and an elongated slot 21 in the block 15 permit of horizontal right line movement of the plate 17 toward and from the presser-foot and work-supporting portion. To the lower face of the plate 17 by the shouldered studs 22 tapped into the plate are pivoted

a pair of jaws or arms 23 consisting of horizontal body-portions 24 and vertically extending blade-like portions 25 notched as indicated at 26 at their adjacent meeting edges.

5 The jaws or arms 23, constituting the vital members of the clamp, are articulated as indicated at 27 by a mutilated gear expedient and a spring 28, secured at its opposite ends in any convenient manner to each of the jaws as by the screws 29, urges them together against the shank of a button interposed between them in the manner illustrated in the drawings.

For conveniently separating the jaws or arms 23 to permit removal of the button, lugs 30 are provided on each member and are so proportioned and arranged that their rounded end edges 30' lie adjacent each other when the work-engaging edges 23' of the blade-like portions are gripped upon the shank of a button. A wedge 31 is arranged at the lower end of a pin 32 which is slidably arranged in the block 15 with its end projecting above the upper surface of the same. By depressing the pin 32 it will be obvious that the wedge 31 may be thrust between the lugs 30 to spread the jaws or arms 23 against the action of spring 28 thereby releasing the button after it has been stitched in place on a garment or to material such as fabric, leather, &c. Turning of the wedge 31 out of coöperative relation with the lugs 30 is prevented by fixing to the pin a wire 32' which plays in the slot 15' in the block 15. Depression of the pin 32 may be effected mechanically in any suitable manner. As shown on the drawings this is accomplished by fixing a wing or stop 34 to the lower end of a rod 33 adjustably secured in any convenient manner as by a screw 34' to a fixed part of the machine. When the presser-bar is lifted it carries the clamp bodily upward and the pin 32 against the wing or stop 34 thereby spreading the jaws and releasing their grip on the shank of the button.

The blade-like portions 25 of the jaws are cupped or dished so as to conform to the shape of the under side of the body of a button which it will be remembered is usually convex. This shape of the blade-like portions is indicated clearly on the drawings at Figs. 2, 3 and 5. Obviously, however, the blade-like portions may be variously shaped to suit the requirements of a variety of styles of buttons. The parts of the blade-like portions 25 which are remote from the notches act as a steady or rest for the body of the button radially of its shank when the shank of the button is gripped by the work-engaging edges of the blade-like portions close up to the junction of the shank with the body of the button. Preferably the blade-like portions are notched

but they need not be. By notching the edges accidental bodily sidewise displacement of the shank of the button in all directions is better provided against as the notches engage the shank at three or more points defining substantially a circle about and restraining the shank. But obviously the tension of the spring 28 could be made sufficiently great to grip the shank of the button if the edges 23' of the blade-like portions 25 were made straight. And while the spring 28 is a most excellent means for urging the jaws or arms 23 together upon the shank because its action is automatic a wide variety of other and well known mechanical expedients could be used for the same purpose.

The blade-like portions 25 are also cut away slightly on one face at their lower depending vertical ends as indicated by the shoulder at 35 so as to permit locating the eye of the shank well across the bend in the material laid over the work-supporting portion 2 and transverse the needle-path. The shoulder 35, Fig. 3 formed by the clearance cut engages the corner of the fold in the material and tends to limit the downward movement of the spring-pressed presser-bar 10 and the extreme lower ends of the blade-like portions have a smoothing action in their descent tending to sharpen the angle or bend in the material when the presser-bar is lowered, as it may be by any suitable well-known means.

The clamp or button-holder is located wholly to one side of the needle-path and the presser-foot lies on the opposite side of the needle. The blade-like portions 25 of the clamp are in parallelism substantially with the needle. It will be obvious from these observations that the operation of inserting a shank button in the applicants' clamp is much simpler than in former constructions in which the shank button was moved in the direction of extent of the needle rather than transverse thereto as in the present construction.

The operation of a machine equipped with the clamp described is very simple and enables an operative to remove and insert and position a button preparatory to another stitching operation with a minimum expenditure of time. Supposing the machine to have been brought to rest by an automatic stopping mechanism the operator by one movement elevates the presser-bar, the presser-foot and the clamp. In the elevation of the clamp the wing or stop 34 positioned in the path of the pin acts upon the same to open the clamp sufficiently to permit ready release of the button before the clamp has moved a considerable or prohibitive distance from its normal operative position. The operative advances the button

with its shank horizontal into the spaced blade-like portions of the jaws which are preferably separated a slight distance less than the maximum diameter of the shank.

5 In this way the button is loosely gripped in a very convenient manner. With the material or garment to which the button is to be stitched positioned across the work-supporting portion 2 the operator has only then
10 to lower the presser-bar when the spring 28 will overcome the interposed wedge 31 and tightly grip the shank-engaging edges of the blade-like portions upon the button before the clamp descends far enough to seat
15 the shank across the bend in the material. With these simple operations the machine may be started anew to stitch another button to the garment.

The foregoing disclosure relates to the preferred embodiment of the invention but it is obvious that the principle may be incorporated in a variety of other forms. The tubular arm for instance is not vital and may as well be replaced by a flat bed. Again
25 the vibrating needle may be replaced by a non-vibratory needle and a vibratory clamp used in conjunction therewith. In fact any stitch-forming mechanism may be used with the clamp which will enable thread to be
30 cast through and about an apertured shank. It will also be obvious that the presser-foot 6 may be omitted for some classes of work where the extreme lower ends of the jaws or blade-like portions 25 could be relied
35 upon to prevent displacement of the material or work during the operation of the stitch-forming mechanism when there is a relative lateral shifting or jogging motion between the needle of the stitch-forming
40 mechanism and the work-supporting mechanism.

Having thus set forth the nature of the invention, what we claim herein is:—

1. In combination, a sewing machine having stitch-forming mechanism including a
45 needle and a work-holder for maintaining in thread-receiving relation with the needle an article having a thread-receiving eye formed in a shank projecting from the body of the
50 article, said work-holder including means for gripping the shank of the article and holding the shank against bodily sidewise movement in all directions and additional
55 means cooperating therewith to steady the body of the article against tilting in the gripping means whereby the shank of the article is maintained in a definite angular relation to the clamp.

2. In combination, a sewing machine having stitch-forming mechanism including a
60 needle and a work-holder for maintaining in thread-receiving relation with the needle an article having a thread-receiving eye formed in a shank projecting from the body of the

article, said work-holder including means
65 for gripping the shank of the article at three or more spaced circle defining points and holding the shank against bodily sidewise and endwise movement in all directions and additional means cooperating therewith to
70 steady the body of the article against tilting in the gripping means whereby the shank of the article is maintained in a definite angular relation to the clamp.

3. In combination, a sewing machine hav-
75 ing stitch-forming mechanism including a needle and a work-holder for maintaining in thread-receiving relation with the needle an article having a thread-receiving eye
80 formed in a shank projecting from the body of the article, said work-holder including means for gripping the shank of the article and holding the shank against bodily side-
85 wise movement in all directions and additional means cooperating therewith to steady the body of the article against tilting in the gripping means whereby the shank of the
90 article is maintained in a definite angular relation to the clamp, said additional means being located at one side of the button.

4. In combination, a sewing machine hav-
ing stitch-forming mechanism including a
95 needle and a work-holder for maintaining in thread-receiving relation with the needle an article having a thread-receiving eye formed in a shank projecting from the body
100 of the article, said work-holder including means for gripping the shank of the article and holding the shank against bodily side-
105 wise movement in all directions and additional means cooperating therewith to steady the body of the article against tilting in the gripping means whereby the shank of the
110 article is maintained in a definite angular relation to the clamp, said additional means being located on the same side of the button as the gripping means and being integral
115 therewith.

5. In a machine for sewing on buttons
120 having a shank projecting from a body-portion, in combination, stitch-forming mechanism including a needle, a button-clamp including a plurality of relatively movable
125 members each having a thin blade-like portion provided with a shank engaging edge, said shank engaging edges being substantially parallel with the needle and together forming a means for preventing bodily side-
130 wise movement of the shank, and means for holding said engaging edges in contact with the shank.

6. In a machine for sewing on buttons
having a shank projecting from a body-portion, in combination, stitch-forming mechanism including a needle, a button-clamp in-
135 cluding a plurality of relatively movable members each having a thin blade-like portion provided with a shank-engaging edge,

said shank-engaging edges being substantially parallel with the needle and together constituting a means for preventing bodily sidewise movement of the shank, and spring means for holding said engaging edges in contact with the shank.

7. In a machine for sewing on buttons having a shank projecting from a body-portion, in combination, stitch-forming mechanism including a needle, a button-clamp including a plurality of articulated and relatively movable members each having a thin blade-like portion provided with a shank-engaging edge, said shank-engaging edges being substantially parallel with the needle and collectively constituting a means for preventing bodily sidewise movement of the shank, spring means for holding said engaging edges in contact with the shank, and means for separating said blade-like portions against the action of said spring.

8. In a machine for sewing on buttons having a shank projecting from a body-portion, in combination, stitch-forming mechanism including a needle, a button-clamp including a pair of relatively movable members having thin blade-like portions provided with notches and extending in the same direction as the needle, means normally holding said relatively movable members with their blade-like portions in contiguity and their notches upon opposite sides of a button shank, said blade-like portions being movable bodily in a fixed path, a stationary abutment, and means movable with the blade-like portions and adapted to contact with said abutment for separating said relatively movable members.

9. In a machine for sewing on buttons having an apertured shank, in combination, stitch-forming mechanism including a reciprocating needle and button-shank gripping means, said needle and gripping means being relatively movable to loop the thread through the apertured shank and said gripping means including blades holding the button solely by its shank and at the junction of the shank with the button body to hold it in thread receiving position.

10. In a machine for sewing on buttons having an apertured shank, in combination, stitch-forming mechanism including a reciprocating needle and button-shank gripping means for grasping the button solely by its shank, said button-shank gripping means being located wholly to one side of the needle-path.

11. In a machine for sewing on buttons having an apertured shank in combination, stitch-forming mechanism including a reciprocating and vibratory needle, a button-clamp, a base-member, a work-supporting member mounted on said base-member with its upper face at a higher elevation than said base-member whereby material may be

arranged to present a shoulder or angle to the shank of a button, said button clamp including blade-like portions adapted to grip the shank of a button and normally arranged substantially at right angles to the plane of the upper face of the work-supporting member, means for movably supporting said blade-like portions from above the base-member and permitting them to be moved from an elevated position down across and close to the face of the work-supporting member whereby the shank of the button may be positioned across the shoulder or angle in the material with its aperture in register with the path of the needle.

12. In a button-clamp for sewing on buttons having an apertured shank, in combination, stitch-forming mechanism including a needle, a pair of relatively movable jaws each having a body-portion and a depending blade-like portion substantially parallel with the needle, said blade-like portions having work-engaging edges arranged in parallelism and provided with complementary notches for encompassing the shank of a button, oppositely directed lugs on each of said jaws, and a wedge movable to and from a position between said lugs.

13. In a clamp for sewing on buttons having an apertured shank, a supporting-plate, a pair of jaws pivoted to said plate, and articulated for equal movement in opposite directions a spring for urging said jaws together each of said jaws having a horizontal body-portion and a depending vertical portion adapted to grip the shank of a button, and each depending vertical portion being dishd or cupped to conform to the under side of a button.

14. In a machine for sewing on buttons having apertured shanks, in combination, stitch-forming mechanism including a needle, a presser-foot and a cooperating work-supporting block having a fold-forming corner, and button-holding mechanism including shank-gripping blades substantially parallel with the needle and cooperating with the block to fold the material to which a button is to be sewed.

15. In a machine for sewing on buttons having apertured shanks, in combination, stitch-forming mechanism including a needle, work-holding mechanism including a block, and button-holding mechanism including blades arranged substantially parallel with the needle for gripping the button-shank at its junction with the body of the button, said block and blades being relatively movable and cooperating to bend the material into a sharp angular form to allow room for the shank of the button to extend over a portion of the material which is substantially perpendicular to the needle.

16. In a machine for sewing on buttons having apertured shanks, in combination,

stitch-forming mechanism including a needle, work-holding mechanism including a block, and button-holding mechanism including blades substantially parallel to the needle and located wholly to one side of the needle's path for gripping the button solely by its shank and holding it in position to be stitched.

17. In a sewing machine, in combination, stitch-forming mechanism including a needle, and button-holding mechanism including relatively movable jaws having body portions and blade portions arranged at an angle to the body portions, said blade portions being substantially parallel to the needle and shaped to grip the button by its shank and to steady it radially of the shank.

18. In a machine for sewing on buttons, in combination, stitch-forming mechanism including a needle, button-holding mechanism including cooperating jaws having body portions and blade portions disposed at a substantial angle to the body portions, said blade portions being shaped to grip the button solely adjacent the junction of the shank with the body of the button whereby the shank may be positioned in contact with a body fabric at the stitching point.

19. In a machine for sewing on buttons, in combination, stitch-forming mechanism including a needle, and button-holding mechanism, including a pair of cooperating relatively movable jaws having thin blades extending in the same direction as the needle and provided with complementary notches for gripping a button by its shank on one side of the aperture therein and between the aperture in the shank and the body of the button, said blades being located wholly to one side of the path of the needle, whereby the apertured shank may project entirely to one side of the blades into the path of the needle.

20. In a button sewing machine, in combination, means for holding a button solely by its apertured shank, means for stitching through and around the shank of the button, and means cooperating directly with the button-holding means for forming a bend in the material to which the button is to be stitched, said last-named means forming the bend in the material independently of the button.

21. In a button sewing machine, in combination, means for holding a button by its apertured shank including a pair of relatively movable blades, means for stitching the button to a piece of material and means for holding the material while the button is being stitched thereto, said button-holding and work-holding means being relatively movable in the direction of the extent of the needle to form a bend in the material.

22. In a sewing machine, in combination, stitch-forming mechanism including a needle, a work-supporting member having intersecting faces defining a corner around which work may be bent sharply, a presser for gripping the work upon said member, and a button-holding mechanism including a pair of relatively movable blades shaped to grip the shank of a button and movable toward and from each other, and means for bodily moving said blades down past said corner of the work-supporting member to sharply bend the work thereon, whereby the button held by its shank in the blades may be positioned with its apertured shank in the needle-path in unobstructed view of the operator.

23. In a machine for sewing on buttons having metallic and apertured shanks, in combination, stitch-forming mechanism including a needle, and work holding mechanism including a work-supporting member and a pair of gripping jaws, said gripping jaws being shaped to grip the shank only of the button and to steady one side of the button at a plurality of points spaced from the junction of the shank with the body of the button, and means for laterally jogging the needle and the work holding mechanisms relatively to permit of laying stitches through and around the apertured shank.

24. In a machine for sewing on buttons with apertured shanks of bent wire projecting laterally from its body, in combination, stitch-forming mechanism including a needle, and work-holding mechanism including gripping jaws and a work-supporting member having a shoulder, means for imparting relative and lateral jogging movements to the needle and work-holding mechanism, said gripping jaws having elements for gripping the shank only of the button and also having abutments with faces disposed transversely of the shank adapted to steady the shank side of the button, and said gripping jaws being pivoted for movement in a plane substantially perpendicular to the needle and at the same side of the gripping elements as the faces of the steadying abutments whereby the shank may be projected over the shoulder of the work-supporting member and over material thereon.

25. In a machine for sewing on buttons having apertured shanks, in combination, stitch-forming mechanism including a needle, means for supporting material including a raised member having a material bending edge, means for gripping and holding a button by its shank and with said shank above and across said bending edge of the raised member including button-holding jaws shiftable substantially lengthwise of the needle and having a portion cooperatively arranged with respect to the raised member for engaging and bending material

about said material bending edge whereby
an apertured button-shank may be posi-
tioned on the raised member across an angle
or bend in the material thereon without
5 loosening the grip of the jaws on a button,
said needle and means for supporting mate-
rial being relatively movable to permit

stitches to be laid around and through the
button-shank.

In testimony whereof we have signed our 10
names to this specification.

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