J. H. MASTERSON.

SEWING MACHINE.

APPLICATION FILED MAY 21, 1917.

1,302,689.

Patented May 6, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

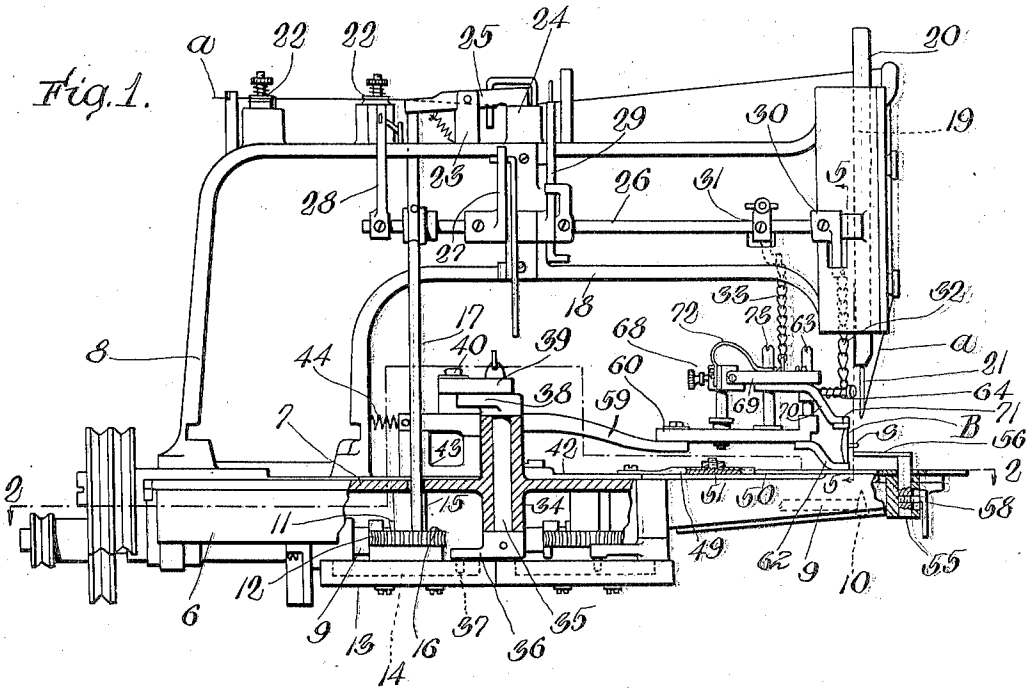
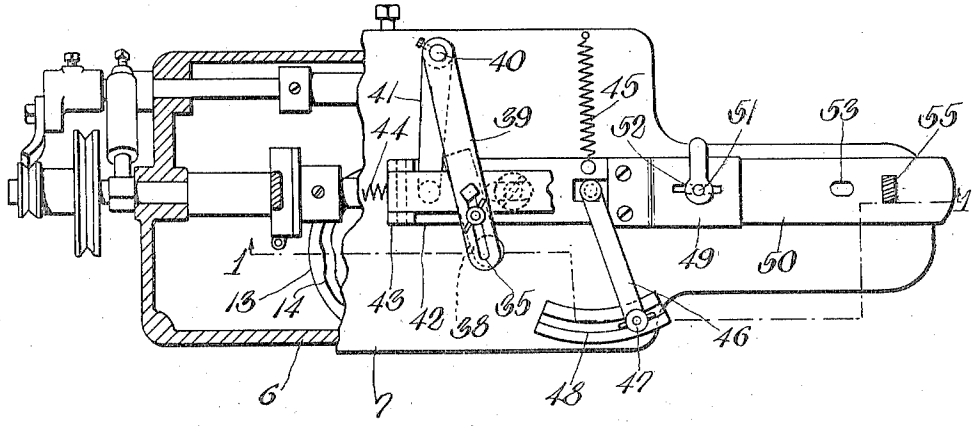


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

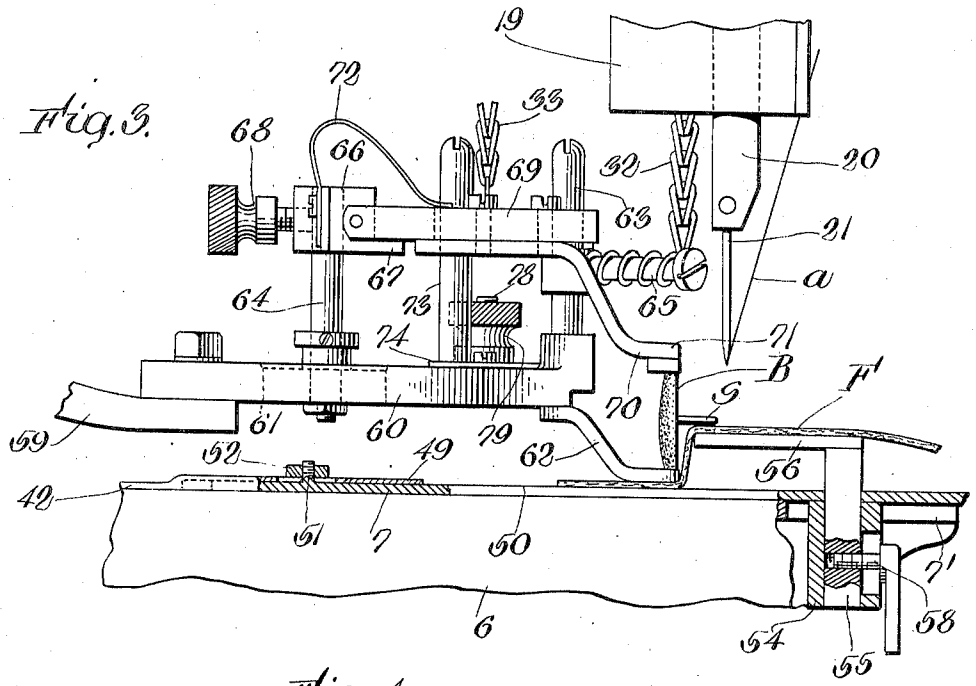
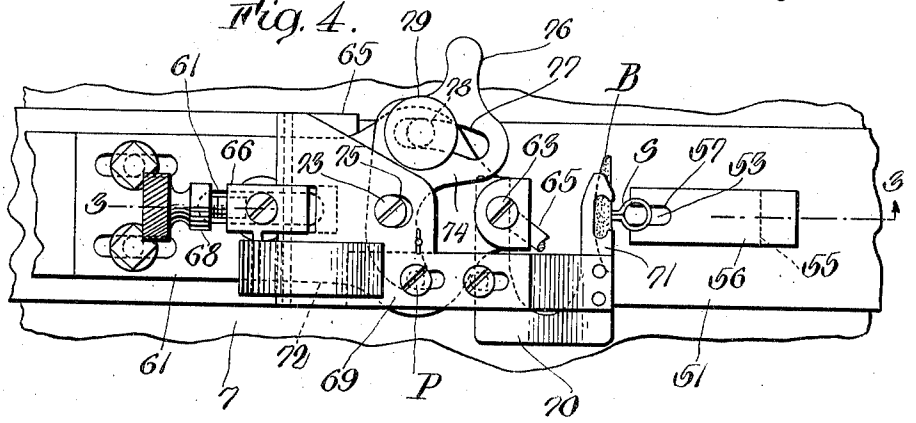


Fig. 4.



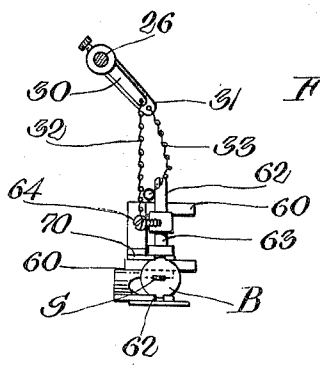


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES H. MASTERSON, OF COLLEGE POINT, NEW YORK, ASSIGNOR TO FREDERICK OSANN COMPANY, A CORPORATION OF NEW YORK.

SEWING-MACHINE.

1,302,689. Specification of Letters Patent. Patented May 6, 1919.

Application filed May 21, 1917. Serial No. 169,938.

To all whom it may concern:

Be it known that I, JAMES H. MASTERSON, a citizen of the United States, and a resident of College Point, Queens county, Long Island, State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in sewing machines and more particularly to improvements in button sewing machines.

One object of the invention is to improve the construction of the work holder whereby the same may be more readily and accurately adjusted to receive the button and the fabric to which the button is to be sewn.

Another object of the invention is to facilitate the operation of severing the thread after the sewing operation and the release of the work.

Other objects of the invention will appear from the following description.

The invention consists in the novel construction of the button holder having the adjustable fabric support.

The invention also consists in the work holder having the button lifting means.

The invention also consists in the button lifting means whereby the thread is placed under strain, to assist in severing said thread and whereby the button is ultimately released.

The invention also consists in such other novel features of construction and combination of parts, as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a side elevation of the improved machine parts of the same being broken away and other parts being shown in section as on line 1—1 Fig. 2.

Fig. 2, represents a plan view partly in section as on line 2—2 Fig. 1.

Fig. 3, represents an enlarged detail view in side elevations of parts of the machine, portions of the same being shown in section as on line 3—3 Fig. 4.

Fig. 4, represents a plan view of some of the parts shown in Fig. 3.

Fig. 5, represents a detail view partly in section on line 5—5 Fig. 1 to more clearly illustrate the means for lifting members of the work holder.

Similar characters of reference designate corresponding parts throughout.

The subject matter of the present invention is shown in the drawing in relation to a well known single thread sewing machine having the base 6, the bed plate 7 and the head 8. Base 6 has the usual rotary looper shaft 9 furnished with the looper 10 and said looper shaft 9 has also the worm 11 which drives the worm gear 12 of cam member 13 having the cam groove 14 and rotatably carried by the stud 15 depending from bed plate 7 or said cam member 13 may be mounted in any other well known manner. Worm gear 12 has the cam 16 which is adapted at a point in the rotation of said cam to ride under and lift the rod 17 which is slidably mounted or this rod 17 may be actuated in any manner now known.

Head 8 is furnished with arm 18 having at its forward end the usual member 19 having a guide for the needle bar 20 carrying the needle 21 and adapted to be operated in the usual manner by well known mechanism which, in its specific construction, does not form part of the present invention. On arm 18 are mounted the thread tensions 22, 22 and the posts 23, 24 of which post 23 has the pivoted arm 25 which is adapted to be operated by the upward movement of rod 17 to coöperate with post 24 as a thread restraining or thread clamping means for the sewing thread *a—a* which passes through said tensions 22, 22 and between one end of arm 25 and post 24 in its passage to the needle. At one side of arm 18 is mounted the rock shaft 26 which is adapted to be operated manually by means of its lever 27 and on this rock shaft are carried the thread puller arms 28 and 29 and the lever arms 30 and 31 all of which and particularly the lever arms 30 and 31 are adapted to be adjusted on said shaft 26 relative to the swing of their free ends. Arms 30 and 31 preferably differ in length as shown in Fig. 1 in order that, in the swing of these arms caused by rotative movement of shaft 26, they may exert different leverage actions on their respective chains 32 and 33.

Bed plate 7 has the bearing 34 in which is journaled the shaft 35 having at its lower portion the arm 36 having the follower 37 which is engaged with and follows the cam

groove 14 of cam member 13 in the rotation of such member. At the upper portion of shaft 35 is arm 38 provided with the adjustable lever member 39 which operates the shaft 40 to effect the swinging of its lever arm 41 through which vibratory motion is imparted to the base 42 of the work holder. Such vibratory motion of base 42 is substantially longitudinal of said base and, in one direction, is cushioned and resisted by the coil spring 44 located between the head 8 and the member 43 of said base 42. Spring 45 connected with said base 42 and with a fixed part of the machine tends to draw said base 42 out of its right line movement and such drawing action of spring 45 is controlled by the connecting rod 46 pivotally connected with said base 42 and with the clamp member 47 which is adjustable in the curved guide 48 mounted on the bed plate 7.

Base plate 42 of the work carrier has the guide 49 to slidably receive the cloth plate 50 which is secured in its adjusted position by means of its screw stud 51 which extends through a slot in the wall of said guide 49 and has the clamping member 52. At its forward portion cloth plate 50 has the needle passage 53 and the depending guide 54, which latter is free to move in the slot 7′ of bed plate 7 (see Fig. 3), and in this guide 54 is vertically adjustable the member 55 of the cloth support 56 having the slot or needle passage 57. After adjustment said member 55 is secured by means of its clamp device 58 which has a shank or screw free to move in a slot of said guide 54.

Pivotally connected with member 43 of the work carrier base 42 is the arm 59 which has at its forward end the plate 60 having the slot 61 and carrying the curved presser foot member 62 adapted to bear against fabric under operation, as shown in Fig. 3, and shaped as a jaw to receive the lower edge portion of a shank button under operation. Plate 60 has also the upstanding posts 63 and 64 of which post 63 has the laterally extending member 65 connected with chain 32 and post 64 has the block member 66 slidably adjustable on said post 64 and having the stop 67 and the set screw 68 by means of which said member 66 may be secured in the adjusted position on said post 64. Pivotally mounted on said member 66 is the plate 69 which is connected with chain 33 and is furnished with the arm 70 having the button engaging jaw 71. Provision is made by means of spring 72 carried by member 66 to press downward plate 69 and its button engaging jaw 71.

The manner of mounting post 64 on plate 60 is such that said post 64 may be adjusted along the slot 61 of said plate 60. Such adjustment is effected by means of the post 73 mounted on member 74 and extending through opening 75 in the plate 69. Member 74 is pivotally mounted on plate 60 and has the arm 76 and the curved slot 77 through which slot extends the stud 78, of plate 60, having the clamping nut 79. The purpose of such adjustment is to adjust the button engaging jaw 71 relative to the jaw 62 whereby the head of button B can be adjusted relative to its generally vertical position.

Adjustment of the button carrying jaws 62 and 71 having been effected as above described to receive between them a button B of the desired diameter having the shank or eyelet S and the cloth plate 50 and its cloth support 56 having been respectively adjusted to bring the slotted end of said cloth support 56 close to the button B and also a suitable distance below said shank S depending somewhat upon the thickness of the fabric F, the machine is ready to receive the work. In order to facilitate the placing of the button B in position lever 27 is operated to effect the partial rotation of shaft 26 whereby levers 30 and 31 are caused to swing. Lever 30 being longer than lever 31 acts on its chain 32 to lift plate 60, through the swinging of arm 59, and the mechanism carried by said plate 60, including its jaw member 62. After said plate 60 and its jaw member 62 has been moved a predetermined distance lever 31 acts through its chain 33, connected with plate 69, to lift said plate 69 and its button engaging jaw 71 whereby said jaw members 62 and 71 are spaced apart to receive the button B in the position shown in the drawings. While the button holding jaw 62 is in the elevated position fabric F is placed in position as shown in Fig. 3 extending over the cloth support 56 and beneath the button holding jaw 62 which, by reactive movement of lever 30 is permitted to rest as a presser foot on the fabric F to hold said fabric against cloth plate 50 while the button shank S preferably bears against the fabric sustained by the cloth support 56.

The machine is now operated to effect a predetermined number of stitch forming actions during which the work carrier comprising the plate 42 and the mechanism mounted thereon is caused to vibrate through the operation of cam groove 14 on follower 37 of arm 36 so that a series of stitches is sewn across the wire or member of shank S. This cam groove is so shaped that during the sewing of the final stitch or stitches of said group the relative movement between the work and the stitch forming devices ceases whereby, as is well known, one or more chain stitches is formed which latter by the tightening of the thread *a* may be drawn into a knot, so called, close to the under side of the fabric F, from which knot the thread will extend down to and around the looper 10 then upwardly through the

needle 21 and various guides and between the parts 24 and 25 of the thread clamp and through the tensions 22, 22.

At or about the completion of the stitch forming operation or of the thread knotting operation just above referred to rod 17 is raised by the riding thereunder of cam 16 of gear 12 or in any other suitable and well known manner with the result that the thread *a* is clamped or restrained between the members 24 and 25 so that the thread cannot freely pass toward the needle.

After such sewing operation partial rotation of shaft 26 is again effected whereby thread pullers 28 and 29 are caused to act upon thread *a* in a manner now known in the art, puller 28 to draw a supply of thread *a* through tensions 22, 22 and puller 29 to take up slack thread betwen the thread clamp 24, 25 and the work. Such rotative movement of shaft 26 also effects swinging of lever 30 which, through chain 32, raises the plate 60 and its jaws 62 with the work and effects the breaking of the thread which is followed by the lifting action of lever 31 whereby, through chain 33, plate 69 and its jaw 71 are given a movement relative to jaw 62 to free the button B whereupon said button attached to the fabric may be readily removed.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A sewing machine comprising a work holder having a cloth plate and a pair of button holding jaws spaced vertically above said cloth plate and movable relative to each other and to said cloth plate, one of said jaws adapted to bear on cloth on said plate, and a cloth support carried by said cloth plate, said cloth support and cloth plate coöperating to effect adjustment of cloth relative to the path of the needle and vertically.

2. A sewing machine comprising a work holder having a cloth plate, an arm pivotally mounted in said holder and having a button holding jaw constituting a presser foot, a second jaw spaced above said first jaw and pivoted means for carrying said second jaw, said pivoted means mounted on said arm for adjustment.

3. A sewing machine comprising a work holder having a shiftable cloth plate, a vertically adjustable cloth sustaining member mounted on said plate, a presser carrying member above said cloth plate having a button engaging presser foot, a post adjustably mounted on said presser carrying member, a second button engaging member yieldingly mounted on said post, and mechanism for elevating said presser carrying member and said second button engaging member to separate said button engaging members.

4. A sewing machine comprising a work holder having a shiftable cloth plate, a vertically adjustable cloth sustaining member mounted on said plate, a presser carrying member above said cloth plate having a button engaging presser foot, a post adjustably mounted on said presser carrying member, a member vertically adjustable on said post and having a stop, a spring pressed plate pivoted on said latter member and sustained by said stop, a second button engaging member mounted on said post, means to raise said presser carrying member, and means to raise said plate independently of said presser carrying member.

5. A sewing machine comprising a work holder having a shiftable cloth plate, a vertically adjustable cloth sustaining member mounted on said plate, a presser carrying member above said cloth plate having a button engaging presser foot, a post mounted to slide transversely in a slot of said presser carrying member, means to adjust said post, a hinge member vertically adjustable on said post and having a stop and a spring, a plate hinged to said hinge member and acted upon by said spring, a second button engaging member carried by said plate, means to raise said presser carrier member, and means to raise the free end of said hinged plate.

JAMES H. MASTERSON.