No. 722,188. PATENTED MAR. 3, 1903.

C. SCHNEIDER.

SEWING MACHINE ATTACHMENT FOR SEWING ON BUTTONS.

APPLICATION FILED APR. 7, 1899. RENEWED JULY 24, 1902.

NO MODEL.

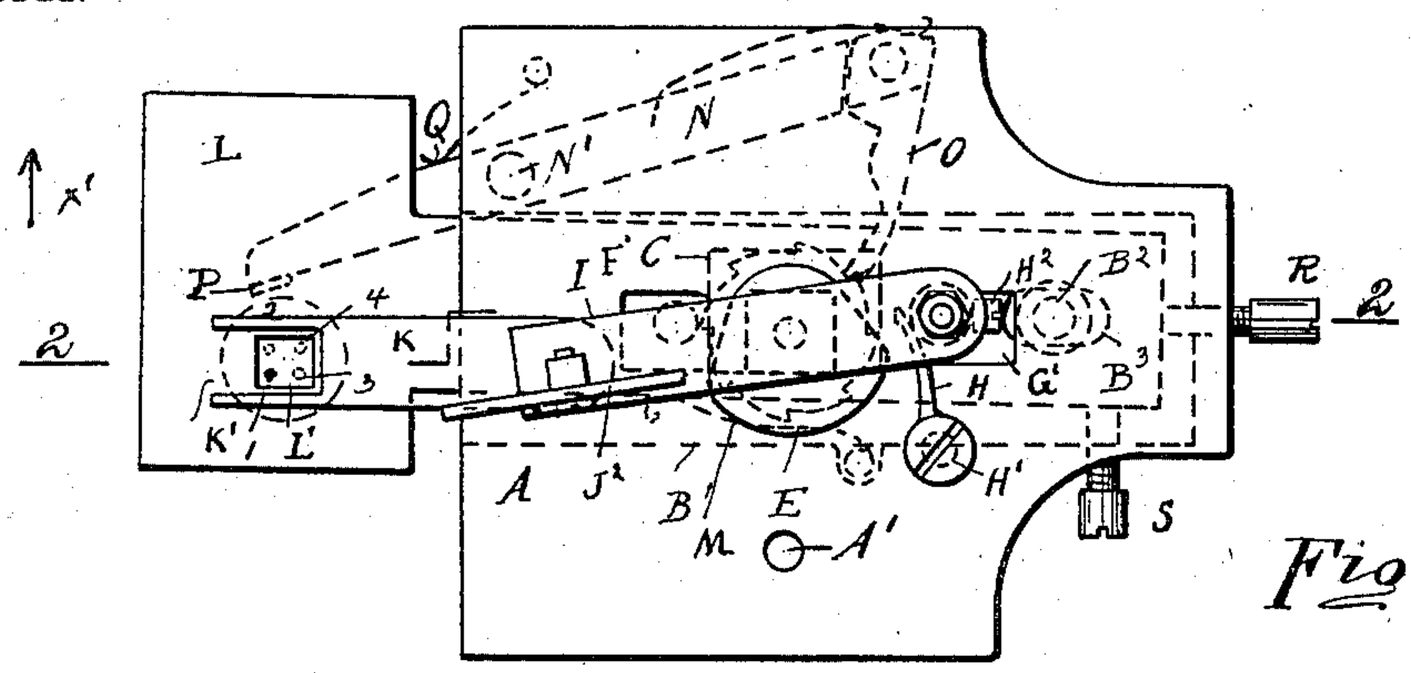

Fig: 1.

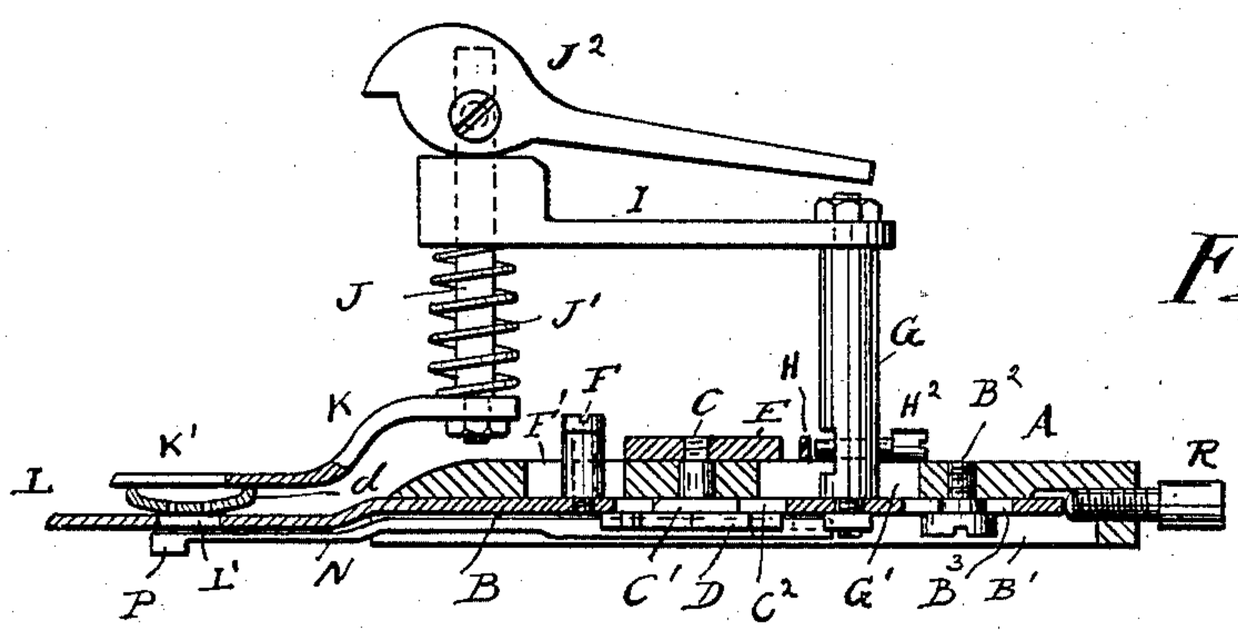

Fig: 2.

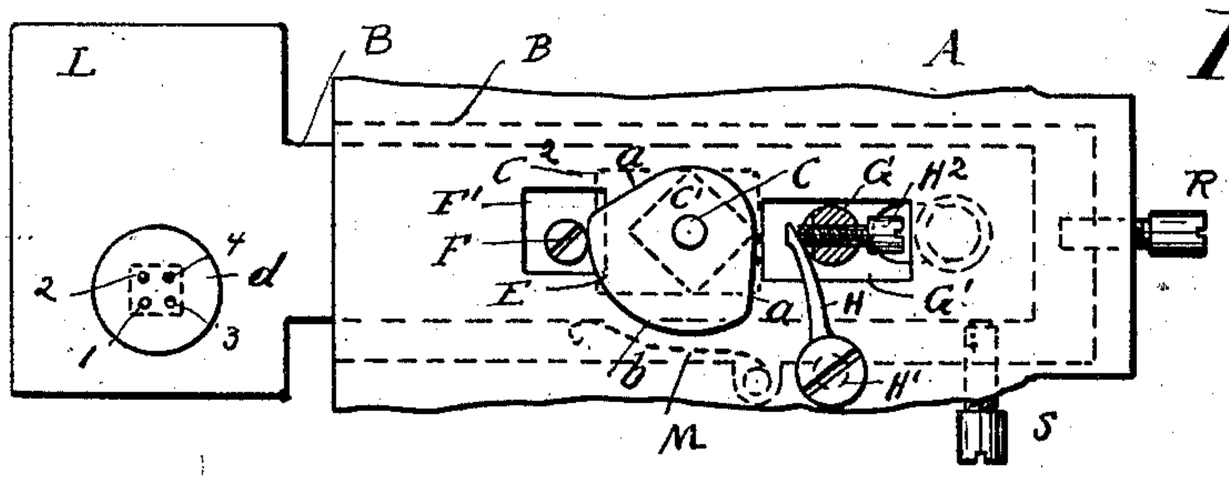

Fig: 3.

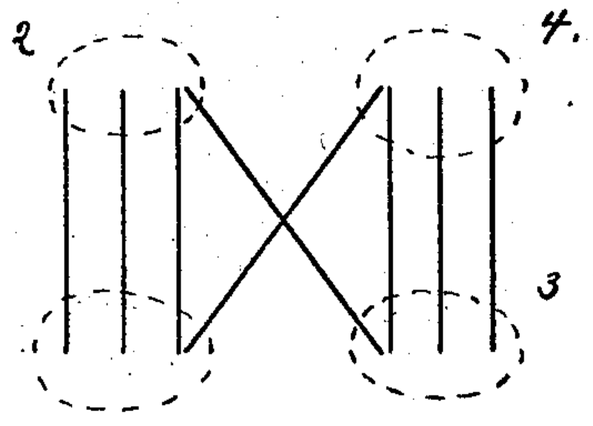

Fig: 4.

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SEWING-MACHINE ATTACHMENT FOR SEWING ON BUTTONS.

SPECIFICATION forming part of Letters Patent No. 722,188, dated March 3, 1903.

Application filed April 7, 1899. Renewed July 24, 1902. Serial No. 116,839. (No model.)

To all whom it may concern:

Be it known that I, CARL SCHNEIDER, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sewing-Machine Attachments for Sewing on Buttons, of which the following is a specification.

This invention relates to a new and improved sewing-machine attachment for sewing on buttons; and the object of my invention is to provide a new and improved attachment of this kind which is simple in construction, strong and durable, can easily be applied on a sewing-machine, and is operated directly by the cloth-feeding device and requires no changes, alterations, or attachments in the mechanism of the sewing-machine itself and can be used for sewing on buttons of all sizes and of any number of holes as commonly used.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate like parts in all the views, Figure 1 is a plan view of my improved sewing-machine attachment for sewing on buttons. Fig. 2 is a vertical longitudinal sectional view of the same on the line 2 2 of Fig. 1. Fig. 3 is a plan view of parts, showing them in a different position from Fig. 1. Fig. 4 is a diagram of the stitches.

The entire mechanism is supported on a base-plate A, which is recessed on the under side and is fastened on the sewing-plate of the machine by means of a screw to be screwed through the hole A′ in the base-plate and screwed into the sewing-machine. A plate B is mounted to reciprocate longitudinally and to swing laterally in the longitudinal groove B′ in the under side of the base-plate A and is pivoted at its inner end to the base-plate by a screw or pin B^2, passing through a longitudinal slot B^3 in the inner end of the reciprocating plate B, which reciprocating plate is provided at the middle of its length with a rectangular slot C^2, in which is located a square cam-plate C′, fixed upon a short arbor C, mounted pivotally in a suitable hole in the top plate, which arbor carries at its lower end and below the reciprocating plate the ratchet-wheel D, fixed on said arbor and having twice as many teeth as there are sides to the cam C′—that is to say, eight teeth. On the upper end of this arbor is secured a cam E, which turns above the upper surface of the base-plate and serves for imparting the longitudinal movement to the reciprocating plate B and is provided with two comparatively straight sides *a* and a curved edge *b*. A pin or stud F projects from the reciprocating plate B through a slot F′ in the base-plate A, so as to permit the curved edge *b* of the cam E to act upon it. A second pin G also projects from the reciprocating plate B through a longitudinal slot G′ in the base-plate, and on it the edge *b* of the cam E can also act.

For the purpose of reducing friction and facilitating adjustment I prefer to provide an intermediary piece by which the cam E acts on the second pin G, and this intermediary piece consists of a short arm H, pivoted at H′ to the upper surface of the base-plate A and resting on the edge of the cam E and against a screw H^2, which is screwed through the pin G, the end of the said screw resting against the edge of the arm opposite the one resting on the cam E. On the upper end of the pin G an arm I is secured, and in the outer end of the same a presser-bar J is mounted to slide up and down and is pressed downward by a spring J′, and to the upper end of this presser-bar a cam-lever J^2 is pivoted above the arm I, which cam-lever serves for raising or lowering the presser-bar. To the lower end of said presser-bar the presser-foot K is secured, on the free end of which the fork K′ is formed.

The button-support consists of the enlarged front end L of the reciprocating plate B and is provided with a rectangular hole L′, through which the needle can pass. The button *d* to be sewed on is placed upon the button-support in such a manner that the holes in the button are within the area of the rectangular hole L′ in the button-support, and the lines connecting the holes in the button are parallel with the edges of the rectangular hole in the button-support. The presser-foot K is so located that when lowered it can rest upon the button *d*, and the holes in the button will be located between the shanks of the fork K′ on the outer end of the presser-foot. A spring M, secured on the under side of the

base-plate, bears against one side edge of the reciprocating plate B in such a manner as to press it in the direction of the arrow X′—that is, in the direction from the operator.

A lever N is pivoted at N′ to the under side of the base-plate A and at its inner end carries a pivoted spring-pawl O, engaged with the teeth of the ratchet-wheel D, and at its outer end this lever is provided with a downward-projecting lug or wing P, which can be engaged by the cloth-feeders of the usual construction mounted in slots in the sewing-plate, so that as these cloth-feeders reciprocate they swing the lever N in one direction, the said lever being swung in the opposite direction when the cloth-feeders return by a spring Q, secured to the under side of the base-plate A and bearing against said lever N.

R is a screw in the rear end of the base-plate and serving to limit the longitudinal movement of the reciprocating plate B.

The operation is as follows: The button *d* is placed upon the button-holder L in the proper position and held in place by the presser-foot K, which is lowered by turning down the cam-lever, as shown in Fig. 2, and when the attachment is at rest the first hole 1 in the button will be in such position that the needle in its downstroke will pass through it. As the needle rises the cloth-feeder is moved in the direction of the arrow X′, Fig. 1, and actuates the lever N in such a manner that it turns the ratchet-wheel D the distance of one tooth, or one-eighth of a turn, whereby the cam C′ is turned one-eighth also, and one of its corners acting on the edge of the slot C^2 presses the button-holder, with the button thereon, in the inverse direction of the arrow X′ against the tension of the spring M, so that the hole 2 in the button is now under the needle and the thread has been carried from the hole 1 to the hole 2, the needle passing through the hole 2. At the next upstroke of the needle the cloth-feeder again acts on the lever N, the ratchet-wheel D is turned one tooth, or one-eighth of a turn, as is also the cam C′, the latter being returned to its original position, permitting the spring M to press the button-holder in the direction of the arrow X′—that is, in the direction from the operator—so that the hole 1 will again be under the needle and the thread carried from the buttonhole 2 to the buttonhole 1. At the next upstroke of the needle the cloth-feeder again throws the lever N, whereby the ratchet-wheel is again turned one-eighth, and the cam C′ presses the plate of the button-holder against the tension of the spring M in the inverse direction of the arrow X′, and the needle passes through the hole 2, carrying the thread from the hole 1 to the hole 2. The thread has thus been carried on the upper surface of the button from the hole 1 to the hole 2, from the hole 2 to the hole 1, and from the hole 1 to the hole 2, and during all this time the curved edge *b* of the cam E, which edge is concentric with the pivot C, traveled along and was in contact with the pin F, projecting upward from the plate B, and held the sliding plate and button-support in the outer position. At the next upstroke of the needle the cloth-feeder again actuates the lever N, and the cam C′ is brought to its original position, permitting the spring M to throw the plate B and the button-support in the direction of the arrow X′; but at the same time the cam E is turned one-eighth of a turn, and that end of the curved edge *b* opposite the one just leaving the pin F acts on the arm H, resting against the screw H^2 in the pin G on the plate B, or, in other words, acts by means of intermediary parts on the pin G and pushes the plate B to the right—that is, moves it inward—so that the two outer holes 3 and 4 of the button will now be on a transverse line below the needle, and the hole 3 will be directly below the needle and the thread drawn over the button diagonally from the hole 2 to the hole 3, the arm H resting on the beginning of the curved edge *b* of the cam E. At the next upstroke of the needle the cloth-feeder throws the lever N, and the button-holder is pressed by the cam C′ in the inverse direction of the arrow X′, and the thread passes from the hole 3 to the hole 4 and the needle passes through the hole 4. At the next upstroke of the needle the lever N is again thrown, permitting the spring M to throw the button-support in the direction of the arrow X′, the needle passing through the hole 3 and the thread being drawn from hole 4 to hole 3. At the next upstroke of the needle the button-support is shifted, in the manner described, in the inverse direction of the arrow X′ and the thread drawn from the hole 3 to the hole 4, through which the needle passes, and at the next upstroke of the needle the button-support is pressed by the spring M in the direction of the arrow X′, and at the same time the end of the curved edge *b* of the cam E slides off the arm H, resting on the screw H^2, and the other end of this curved edge acts on the pin F and presses the reciprocating plate and the button-support outward—that is, in the direction toward the left—so that the thread is drawn diagonally from the hole 4 to the hole 1, and so on. According to the distances that the holes in the buttons are apart in the direction of the length of the plate B, the effective distance between the pins F and G is adjusted by means of the screw H^2. When the distance between the holes is short, the screw H^2 is so adjusted as to increase the distance between the free end of the arm H and the pin F, and when this distance between the holes is larger the screw H^2 is adjusted to decrease this distance. According to the size of the distance between the holes of the button transversely to the plate B the screw S is set, so as to decrease or increase the transverse throw of the plate B. When buttons with two holes only are to be sewed on, no lengthwise movement of the plate is required,

and the screw R is screwed in to prevent such lengthwise movement, the screw H^2 having been previously so adjusted as to permit the cam E to turn freely without acting on the pins F or G, so that the button-support will only have a transverse movement. It will be noted that the presser-foot always moves with the button-support.

It is evident that by changing the configuration of the cam E the device can be adjusted for sewing on buttons having any number of holes or any arrangement of the same.

Having thus described my invention, what I claim as new is—

1. In a button-sewing attachment for sewing-machines, the combination with a base-plate, of a button supporting and shifting device, rotary cam mechanism for imparting to said button-supporting device oscillating and combined oscillating and reciprocating movements, a lever pivoted intermediate its ends to the base-plate and provided at one end with means for engaging the reciprocating cloth-feeder of the sewing-machine to oscillate the lever in one direction, a spring for oscillating the lever in the opposite direction, and mechanism actuated by the other end of said lever for intermittingly rotating said cam-actuating mechanism, substantially as described.

2. A button-sewing attachment for sewing-machines, having a movable button-support, a cam-shaft, a cam on said shaft, for shifting the support transversely and a cam on said shaft for shifting the support longitudinally, and means for rotating said cam-shaft from the sewing-machine mechanism, substantially as herein shown and described.

3. A button-sewing attachment for sewing-machines, having a movable button-support, a cam-shaft, a cam on the shaft for shifting the support transversely, a cam on the shaft for shifting the support longitudinally, a lever pivoted intermediate its ends and provided at one end with means for engaging the reciprocating cloth-feeder of the sewing-machine to oscillate the lever in one direction, a spring for oscillating said lever in the opposite direction, and mechanism actuated by the other end of said lever for intermittingly rotating said cam-shaft, substantially as described.

4. In a button-sewing attachment for sewing-machines, the combination with a button-support, of a spring for moving said support laterally in one direction, a rotary cam for moving it laterally in the opposite direction, a shaft on which said cam is fixed, a ratchet-wheel fixed on the shaft, a lever pivoted intermediate its ends and provided at one end with means for engaging the reciprocating cloth-feeder of the sewing-machine to oscillate the lever in one direction, a spring for oscillating said lever in the opposite direction, and a pawl pivoted to the other end of said lever and engaging the ratchet-wheel to intermittingly rotate the shaft carrying the cam, substantially as described.

5. In a button-sewing attachment for sewing-machines, the combination with a base-plate adapted to be attached to the bed of the sewing-machine, of a button-support movable on the base-plate, a cam-shaft journaled in the base-plate, a cam fixed on said shaft, two pins fixed on the button-support on opposite sides of the cam and arranged to be alternately acted on by the cam, a movable arm interposed between said cam and one of the pins and operating to receive the thrust of the cam and impart it to the said pin, means for adjusting said arm between the cam and pin to vary the movement of the button-support, mechanism for rotating the cam-shaft, and mechanism for imparting to the button-support an oscillating movement, substantially as described.

6. In a button-sewing attachment for a sewing-machine the combination with a base-plate, of a movable button-support thereon, a cam, a cam-shaft, two pins on this support, on which pins the cam acts, a screw in one pin and a pivoted arm on the base-plate and interposed between the cam and the screw in said pin, substantially as herein shown and described.

7. In a button-sewing attachment for sewing-machines the combination with a base-plate, of a button-support on the same, mounted to swing laterally and reciprocate longitudinally, a lever pivoted on the base-plate to swing parallel with the base-plate and engaging the cloth-feeder at one end, and at the opposite end operating the button-support, and means for adjusting the lengthwise and transverse motion of said button-support, substantially as herein shown and described.

8. In a button-sewing attachment for sewing-machines the combination with a base-plate, of a movable button-support on the same, a cam on said plate and means for rotating the same, two pins on the button-support, on which pins the cam acts, an arm on one pin, a presser-bar mounted in said arm, a presser-foot on said bar, and means for lowering and raising the presser-bar and foot, substantially as herein shown and described.

9. In a button-sewing attachment for a sewing-machine the combination with a base-plate of a longitudinally and transversely movable button-support on said plate, cams for moving said button-support transversely and longitudinally, a lever pivoted on the base-plate for operating said cams at one end, the opposite end engaging the cloth-feeding devices of the sewing-machine and a presser-foot mounted on the support, substantially as herein shown and described.

Signed at New York, in the county of New York and State of New York, this 9th day of December, A. D. 1898.

CARL SCHNEIDER.

Witnesses:
OSCAR F. GUNZ,
LESTER L. DAVIS.