

June 22, 1965

M. L. GEHRINGER

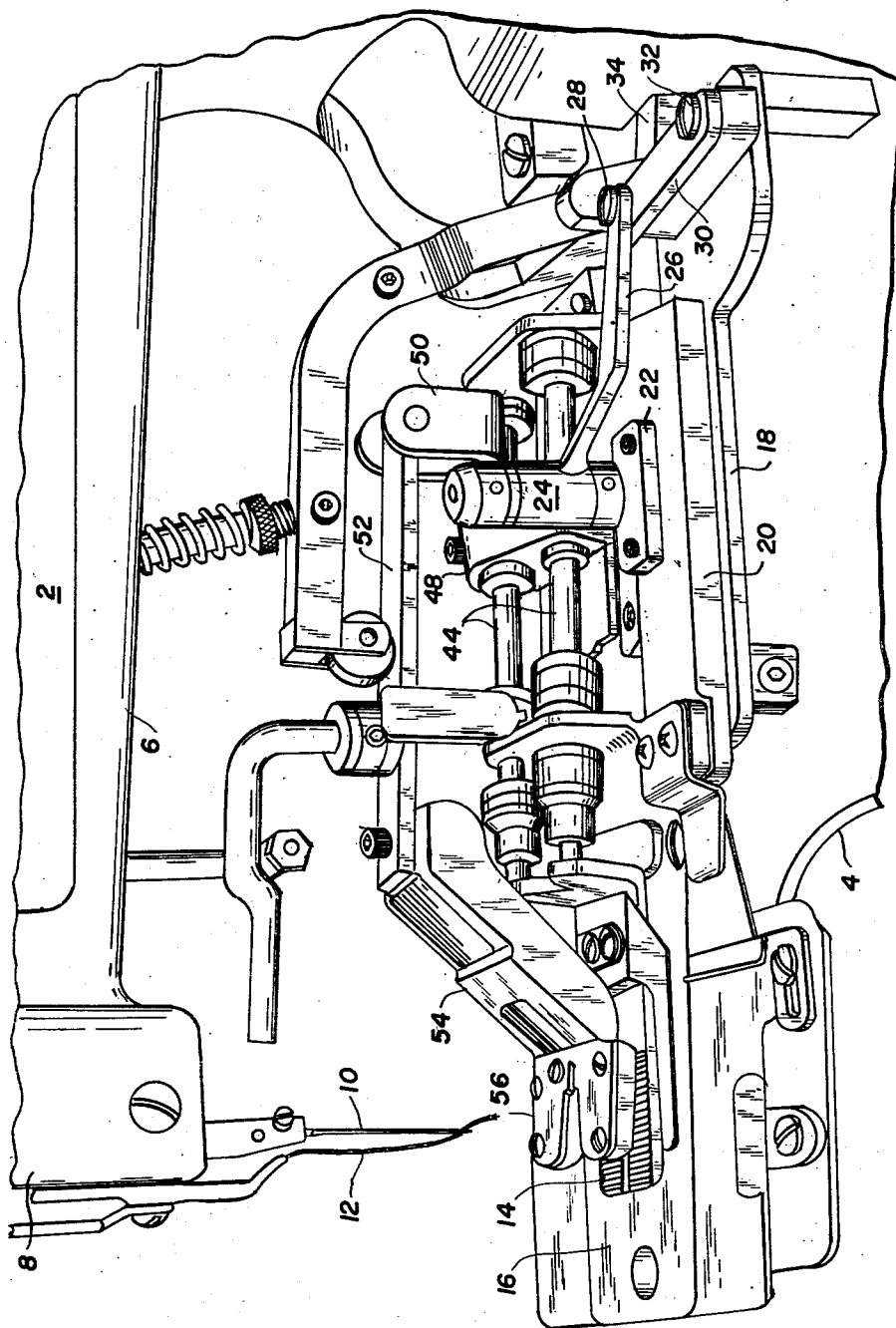
3,190,248

ATTACHMENT FOR SEWING EYES

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Fig. 1.



INVENTOR.
MERVIN L. GEHRINGER

BY

William J. Ruano

his ATTORNEY

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M. L. GEHRINGER

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Fig. 2.

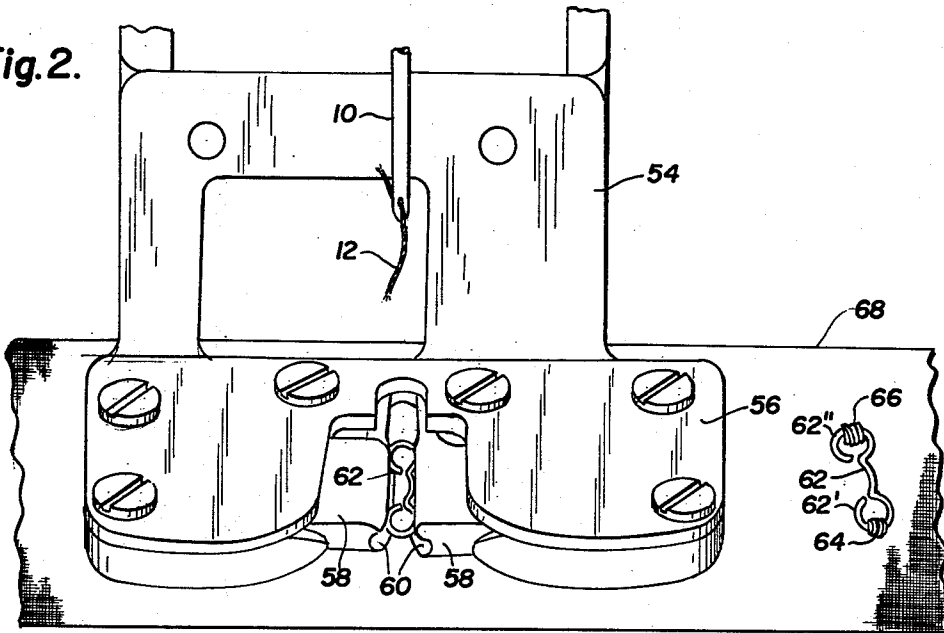


Fig. 3.

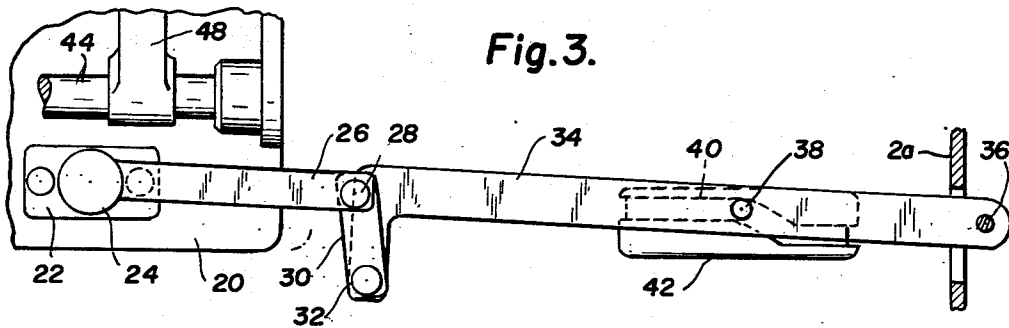
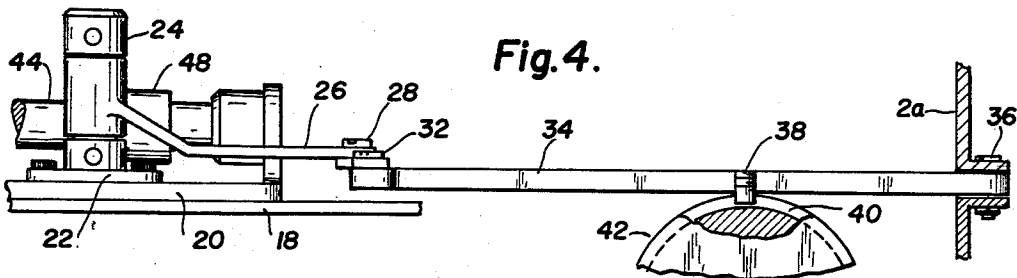


Fig. 4.



INVENTOR.
MERVIN L. GEHRINGER

BY

William J. Ruano
his ATTORNEY

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3,190,248

ATTACHMENT FOR SEWING EYES

Mervin L. Gehringer, 86 Noble St., Kutztown, Pa.

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1 Claim. (Cl. 112—105)

This invention relates to an attachment for converting a button sewing machine to one for rapid sewing, on garments, of eyes of hook and eye sets for detachably securing two parts together.

Eyes, as well as hooks, have been generally sewn on garments by hand which is very tedious and time consuming and which increases the cost of manufacture of a garment appreciably.

An object of the present invention is to provide a novel attachment for use on a conventional button sewing machine, which attachment will automatically sew eyes of hook and eye sets extremely rapidly so as to overcome the above mentioned disadvantages, therefore greatly speeding production and lowering manufacturing costs.

Briefly stated, the present invention comprises the conversion of a conventional two hole, two button sewing machine having a cam which causes lateral oscillations for button sewing, to a machine in which the cloth supporting plate and presser foot are oscillated longitudinally parallel to the head support while an eye is supported on the presser foot, to permit a single needle to sew thread about each of the two loops of an eye of a hook and eye set so as to easily and quickly sew the eye to a piece of cloth.

Other objects and advantages will become more apparent from a study of the following description taken with the accompanying drawings wherein:

FIG. 1 is a perspective view showing a fragmentary portion of a button sewing machine equipped with an eye sewing attachment embodying the present invention;

FIG. 2 is a front, perspective view of the eye sewing attachment shown in FIG. 1 and more clearly illustrating the means for supporting the eye underneath the needle, also showing, at the right portion of cloth 68, an eye 62 which has been sewn by the attachment;

FIG. 3 is a fragmentary top view of a portion of the attachment shown in FIG. 1 (with the frame portion 4 omitted for purposes of clarity), illustrating how the conventional lateral oscillatory movement of a button sewing machine is translated into longitudinal oscillations of crank arm 26; and

FIG. 4 is a side view of the construction shown in FIG. 3.

Referring more particularly to FIG. 1 of the drawing, numeral 2 generally denotes a conventional button sewing machine having a supporting frame portion 4, an overhanging, head support 6 terminating in a head 8 on which is mounted, for vertical reciprocal movement, a needle 10 into which is threaded a thread 12 to effect sewing of buttons on a cloth (not shown). The cloth is supported on a serrated cloth supporting plate 14 located just above plate 16. All of the above described construction is well known in the art and forms the conventional parts of a button sewing machine for sewing buttons having two or four holes, such as Lewis Model 200-1, Union Special, manufactured by Lewis Invisible Stitch Machine Co. of St. Louis, Mo. and shown and described in detail in Nelson U.S. Patent 2,511,367, dated June 13, 1950. Hence detailed description herein of the construction and operation of such conventional button sewing machine is deemed unnecessary.

Briefly, applicant has removed the mechanism of the button sewing machine located between frame 4 and the overhanging support 6 and replaced it by an attachment shown in FIG. 1 embodying the present invention.

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As will appear to the right of FIG. 2, and in accordance with the present invention, an eye 62 is sewn by threads 64 and 66 by the above mentioned attachment, which will be described hereinafter in detail. In addition to the conventional motions of the button sewing machine, which machine includes a rotatable cam 42 corresponding to the cam 47 in said patent having a slot 40, said slot 40 serves as a guide for pin 38, corresponding to pin 46 of said patent, connected to lever 34 for causing lateral oscillations, in a horizontal plane of lever 34 about pivot 36 as a center, which pivot is secured to frame 2a at the rear of the machine. Pin 38 is integrally secured at the bottom surface of lever 34 and is guided by slot 40 to effect said oscillatory movement as a consequence of rotation of cam 42. Oscillation in a horizontal plane by lever 34 about pivot 36 is effective to cause longitudinal oscillation of cloth supporting plate 14 in its own plane because of the interconnection therewith. More specifically, the attachment comprises lever 34 pivotally connected by pin 32 to a link 30 which, in turn, is pivotally connected by pin 28 to a bent lever 26 which is oscillated in a horizontal plane, thereby oscillating cylindrical bearing 24, and at the same time, the bearing support 22 to effect longitudinal oscillation thereof, together with the bearing 48, integrally secured thereto, which, in turn, is integrally secured to longitudinally extending rod 44, the ends of which are integrally secured to cloth supporting plate 14. Therefore, as a consequence of oscillation of bent lever 26 in a horizontal plane, rods 44, together with cloth supporting plate 14, will oscillate, in a horizontal plane, longitudinally, that is, along the direction of the axes of rods 44. This longitudinal oscillatory movement of cloth supporting plate 14 will permit insertion of the needle on both sides, alternately, of one of the loops 62' shown in FIG. 2, whereby thread 64 is sewn about a portion of the loop 62'. After about 6 stitches have been sewn at 64, the attachment is automatically longitudinally shifted so that it will sew six stitches of thread 66, alternately on one side and then the other, of the other loop 62'' of eye 62.

The presser foot 54 has an eye supporting portion 56, illustrated more clearly in FIG. 2, which is in the form of a plate overhanging and screwed onto a base and between which plate and base there are yieldingly supported, by means of springs under the plate (not shown), a pair of supports 58 which are yieldingly pressed toward each other by said springs so that confronting grooves 60 thereof will serve as means for retaining the eye 62 preparatory to sewing, so that the eye may be sewn onto a cloth 68. In other words, eye 62 is slipped between supports 58 yieldingly spreading them apart and which yieldingly tend to move together to firmly hold the eye in the desired position that is, so that the loops 62' and 62'' will be disposed longitudinally of the attachment.

In operation, therefore thread 64 is sewn about a portion of one loop 62' of the eye as a consequence of relative longitudinally sliding movement between rods 44 and the supporting bearings thereof. Then as about six stitches of thread 64 (or any other number more or less) are completed, the inherent operation of the button sewing machine normally required for moving the attachment from one button to another is employed for the purpose of shifting the supporting plate 20 together with the presser foot 54, rigidly attached with respect thereto by an interconnecting element. This causes the cloth supporting plate 14 and presser foot 54 to move longitudinally by the distance between thread 64 and thread 66, shown in FIG. 2, so that now the machine will sew thread 66 by relative longitudinal sliding movements of rods 44 and plate 14 with respect to the presser foot 54. At this new position, bell crank 26 is again oscillated to move the bearing 24 and bearing 48 longitudinally with respect to the stationary bearing or frame 18. Thus the thread is

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sewn first on one side and then on the other side of a portion of the loop 62' until about six stitches 66 are completed.

Then as the result of the operation of cam 42 of the button sewing machine mechanism and link 30, longitudinal motion is imparted to link 26 and cloth supporting plate 14 is again moved to its original position whereby upon feeding of a new eye, such as 62, between the supporting elements 58, threads will again be sewn at 54 about a loop portion of loop 62', and thereafter the above described action is repeated. In other words, the machine causes needle movements on both sides of a portion of loop 62' to sew thread 64, then the attachment shifts to a new position to enable sewing on both sides of a portion of loop 62' so as to sew stitches 66, and thereafter the machine attachment shifts again back to its original position to again sew on both sides of the loop 62' to sew thread 64, and then back again to sew thread 66, and so on, thereby alternately sewing threads 64 and 66 to securely fasten eye 62 to the garment.

An important feature of the present invention is that the required motions for sewing an eye are obtained by translating the existing or conventional motions of a button sewing machine. The latter normally sews stitches laterally, which motions are converted by the present attachment to longitudinal motions, whereby each of the stitches is sewn in longitudinally spaced relationship, instead of in laterally spaced relationship as in a button sewing machine.

An advantage of the present attachment is that it can be purchased as a separate unit and will convert a conventional button sewing machine into an eye sewing machine. Then if the button sewing machine is again needed the eye sewing attachment may again be removed and replaced by the original button sewing attachment.

Thus it will be seen that I have provided an efficient attachment which can be readily substituted for the conventional button sewing attachment on a button sewing machine, so as to enable the use of such machine for selectively sewing either buttons or eyes, as desired; furthermore, I have provided an eye sewing attachment which will enable the garment manufacturer, who usually has a button sewing machine for sewing buttons having two or four holes, to quickly convert it for use for sewing eyes, instead, in an extremely speedy manner, so as to considerably reduce manufacturing costs and time of manufacture of a garment.

While I have illustrated and described a single specific embodiment of my invention, it will be understood that

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this is by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claim.

I claim:

In a sewing machine for sewing buttons having two or four holes and having a supporting frame, an overhanging head support thereon on which a head is attached mounting a single needle, a cloth supporting plate mounted so as to be longitudinally movable on said frame under said head, a presser foot mounted between said plate and head and a rotary cam having a slot and driven by said machine below said supporting plate for controlling the movements of said supporting plate; the improvement comprising linkage means including a pin on said linkage means engaging said slot, said linkage means being pivotally connected, at one end to said frame, and at the other end, to said cloth supporting plate and presser foot, said linkage means including bent lever means to effect only longitudinal reciprocations of said presser foot and cloth supporting plate, in spaced parallel relationship to and below said head support, said presser foot including spring biased holding means shaped to receive an eye having two loops so that said loops extend longitudinally of said head support and of the base of said presser foot, said presser foot and cloth supporting plate being driven by said linkage means and being movable in unison under the control of said pin and slot to cause said needle to sew thread alternately inside and outside of each of said loops, in succession and along a straight line in spaced parallel relationship to said head support and onto a garment mounted on said cloth supporting plate, whereby the eye is rapidly and automatically sewn to the cloth.

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JORDAN FRANKLIN, *Primary Examiner.*

THOMAS J. HICKEY, DAVID J. WILLIAMOWSKY,
Examiners.