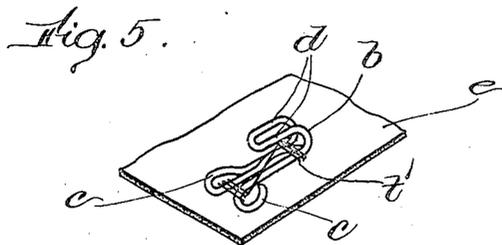
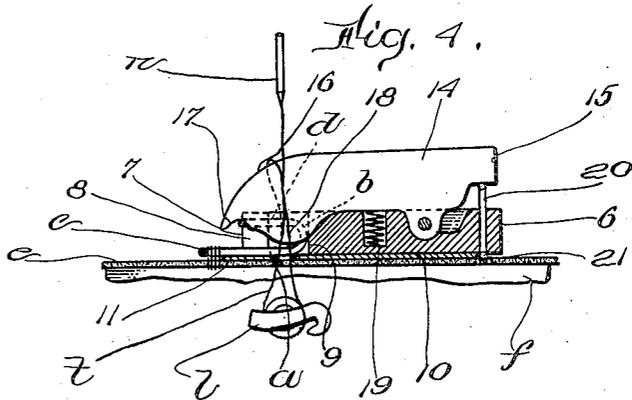
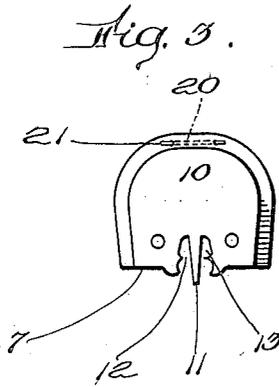
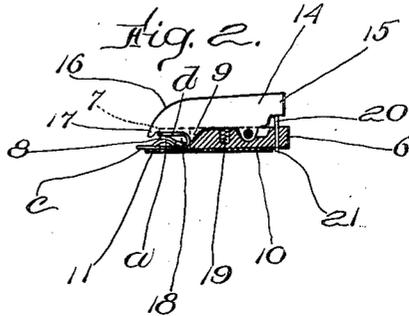
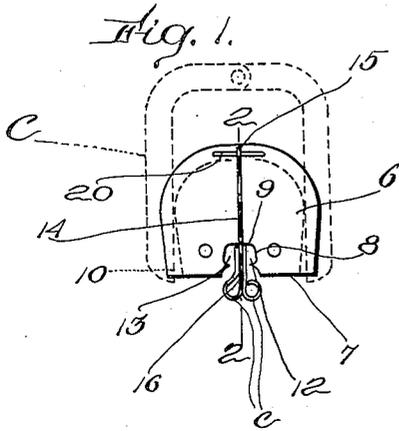


H. B. LYONS.
 HOOK HOLDING DEVICE FOR SEWING MACHINES.
 APPLICATION FILED OCT. 19, 1911.

1,101,134.

Patented June 23, 1914.



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UNITED STATES PATENT OFFICE.

HARRY B. LYONS, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ROBERT L. LYONS, OF WALTHAM, MASSACHUSETTS, AND CHARLES J. SIBBALD, OF TROY, NEW YORK, COPARTNERS AS UNION BUTTON SEWING COMPANY, OF BOSTON, MASSACHUSETTS.

HOOK-HOLDING DEVICE FOR SEWING-MACHINES.

1,101,134.

Specification of Letters Patent.

Patented June 23, 1914.

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To all whom it may concern:

Be it known that I, HARRY B. LYONS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Hook-Holding Devices for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention relates to improvements in devices for holding hooks while the same are being sewn to fabric by a machine and, in its simplest form, this invention relates to such hook holding devices adapted to be mounted on the button clamp or similar vibrating or moving mechanism of a sewing machine whereby the position of the hook, held by this improved device, relative to the path of the needle may be changed from time to time.

One object of this invention is to so construct a hook holding device for sewing machines that the hook may be held from lateral movement while clear passages for the needle are furnished at the sides of the hook.

Another object of this invention is to so construct a hook holding device for sewing on hooks that the needle thread may, at times, be guided around the shank of the hook.

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

The invention consists in the novel hook holding blade.

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 plan view of the improved hook holding device shown in relation to the arms of a button clamp, the latter being indicated, a hook being in place. Fig. 2, represents a sectional view of the improved hook holding device as taken on line 2-2 Fig. 1, a hook being in place. Fig. 3, represents a bottom plan view of the improved device showing the preferred shape of the hook supporting tongue. Fig. 4, represents an enlarged sectional view of the improved device, as on line 2-2 Fig. 1, in relation to the hook and the fabric to which the hook is to be sewed, and illustrating

diagrammatically the manner in which the thread loops are guided over the end of the hook, a portion of the work plate of the machine being shown. Fig. 5, represents a perspective view of a piece of material and a hook sewed thereto as accomplished with the aid of this new device.

Similar numerals of reference designate corresponding parts throughout.

In the sewing of hooks to fabrics by machine, it is found desirable to secure the shank as well as the eye terminals of the hooks to the fabric by loops of the sewing thread. As in such sewing, it is desirable and in some sewing machines necessary to effect the lateral vibration of the hook under operation with respect to the path of the needle, in order to lay the thread across the members of the hook it is necessary to provide means for holding and vibrating the hook which holding means should be adapted to be vibrated by the vibrating mechanism such as is usually employed in the heretofore known button sewing machines to vibrate the button clamps or button holding devices thereof.

It is of course desirable that the hook should be so held by its holding device that the needle shall have clear passage at the sides of the hook shank in order to so place stitches that the thread will draw around said shank and it is also important that the hook be held from lateral motion independent of its vibrating and holding means or carrier as, otherwise, the hook might accidentally move into the path of the needle when the needle is raised and cause the breakage of said needle by intercepting the needle on the downward stroke.

One of the objects of this invention therefore is to so construct a hook carrier for a sewing machine in which the hook may be held from independent lateral motion with respect to its carrier while clearance is offered to the passage of the needle at the sides of the hook.

It is also desirable to facilitate the engagement of the hook with the hook holder or carrier and this is another object of the present invention.

In carrying this invention into practice in its simplest form, I construct the main plate 6 of a shape and size to be applied or

mounted on the button clamp or other similar vibratory means of a sewing machine whereby the work may be vibrated during the sewing operation; this vibratory means being herein indicated as the arms of a button clamp C. This plate 6 has the edge 7 having the opening 8 forming the needle passage and hook receiving chamber of which the inner end 9 forms an abutment to limit the inward movement of the hook when said hook is being inserted. Secured to the plate 6 is the bottom plate 10 having the hook supporting tongue 11 extending beneath said opening 8 and dividing said opening into two needle passages 12 and 13.

Pivotaly mounted on or in the plate 6 is the combined hook holding device and guard 14 which has the rear extension 15, the forward curved edge 16, the hook end 17, adapted to receive the end of the hook, and the hook engaging blade or member 18 which, in the present instance, is shown as engaged between the somewhat separated parallel members forming the end of the hook. Pressure is exerted against the guard member 14 to swing its forward end up to facilitate the placing of a hook in position by the spring 19 located in a socket in said plate 6 and the forward end of said member 14 is moved against the action of spring 19 by the lifter or actuator 20 slidably mounted in perforations and bearing against the extension 15 of member 14, the lower ends 21, 21 of this lifter being adapted to be intercepted by the fabric to which the hook is to be sewn or by any part of the machine, suitably positioned, so that the downward movement of the button carrier against the work or the work support effects, through said lifter or actuator 20, the engagement of the hook by the guard blade 18 of guard 14.

In operation the hook *a* is placed on the tongue 11 with the curve *b* of the hook against the abutment 9 of plate 6, the eyes *c, c* of the hook extending beyond the side edges of said tongue, in which position the space between the members *d, d* of the end of the hook is in alinement with the blade 18 of the holding member 14; the hook carrier is now brought against the material *e* while said material is supported on some supporting member *f* of the machine as shown in Fig. 4 of the drawings and in such movement the lifter or actuator 20 is moved upward relative to the plate 6 and thus moves upward the extension 15 of guard 14, thus bringing the forward end of said guard 14 downward whereby the blade 18 engages between the members *d, d* of the hook end and the hook or depending end 17 of the guard overlaps the end of the hook, the hook being thus engaged wholly within its width.

In the initial part of the sewing operation the hook *a* is preferably so positioned with respect to the path of the needle that, under

lateral vibration, a group of stitches is formed around the inner sides of the eyes *c, c* thereof; the hook carrier is then moved to the position, relative to the path of the needle *n*, shown approximately in Fig. 4 and another group of stitches is sewn. In sewing this latter group of stitches the needle *n* passes down at one side of the guard 14, and freely through the needle passage at one side of the shank of the hook *a* and tongue 11, which passage is of course unobstructed; the thread *t* is taken by the looper *l* and, in such sewing a series of loops of thread is formed which extend over the guard 14 and, when drawn tight, pass in succession down over the curved or inclined edge 16 of said guard 14 and then under the hooked or pointed end 17 thereof whereby said thread loops are guided below the end of the hook and are then drawn to or approximately to the point in the material through which the needle passes in sewing this second group of stitches so that a series of loops of thread embrace the shank of the hook as indicated at *t'* in Fig. 5.

After the sewing operation the hook carrier, with the material *e* and the hook sewed thereto, is preferably moved upward from the part *f* of the machine and the lifter 20 is then free to move downward as the forward part of guard 14 is moved upward by spring 19 acting thereagainst. It is of course evident that the point 17 of the guard 14 need not extend downward below the end of the hook under operation and, in such case, the material *e* and the hook *d*, sewed to such material can be drawn out, to the left in Fig. 4 without first raising this end of the guard 14.

It is of course evident that the blade 18 need not extend downward as far as is shown and for use with hooks of which the members *d, d* are closer together or are of different shape to those shown herein the shape of the hook engaging portion of guard 14 may be and preferably is modified.

It is not my intention to limit my invention to the exact construction of the guard member 14 or to the specific manner of mounting the same relative to the tongue 11, it being understood that said tongue 11 and the guard member are to cooperate to hold the hook in position without interfering with the passage of the needle at the sides of the hook.

It is of course evident that the plate 6 may be formed in part with or be permanently attached to the button clamp or other vibratory device whereby the hook under operation may be moved relative to the path of the needle.

Where it is preferred to vibrate the needle this hook holding device may be stationary without departing from this invention.

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

1. A device for holding hooks in sewing machines comprising a member having a hook supporting tongue, a hook holding member movably mounted on said hook supporting member, and movable means carried by said hook supporting member for moving said holding member vertically.

2. A device for holding hooks in sewing machines comprising a pair of cooperating hook holding members having relative movement, and means acting against one of said members to effect relative movement thereof, said means adapted to be operated by a fixed part of the sewing machine.

3. A device for holding hooks in sewing machines comprising a hook supporting member, an actuating rod slidable in a perforation of said member, and a hook holding member carried by said supporting member and movable toward and from the hook holding position, said holding member being operatively related to said actuating rod.

4. A holding device for holding wire hooks in sewing machines comprising a hook supporting tongue, and a hook holding member having a downwardly extending blade adapted to be engaged between the wire members of the hook and an extension to overlap the juncture of said wire members.

5. A hook holding device for sewing machines having a hook support, and a pivoted

hook holding member having a blade for engaging between the wire members of a hook and an extension to overlap the juncture of said members to guide the thread beneath said point of juncture.

6. A hook holding device for sewing machines comprising a plate having an opening forming a needle passage, a hook supporting tongue carried by said plate and bisecting said passage and a combined thread guide and hook holding member pivotally mounted on said plate to swing toward said tongue.

7. A hook holding device for sewing machines comprising a plate having an opening forming a needle passage, a tongue carried by said plate and bisecting said passage and a member pivotally mounted on said plate to swing into said passage without obstructing the same, said member having a hook engaging means.

8. The combination with a plate having an opening therein and a second plate secured to said first plate and having a tongue extending across said opening, of a member pivotally mounted on said plate and having a forward curved edge terminating in a hook and a hook engaging member, a spring acting to move said member in one direction and means acting on said member to swing the same against the action of said spring, substantially as described.

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