Jan. 9, 1934. L. ROSEMAN 1,942,903

SEWING MACHINE FOR STITCHING OVER FASTENER MEANS

Filed Nov. 10, 1930 3 Sheets-Sheet 1

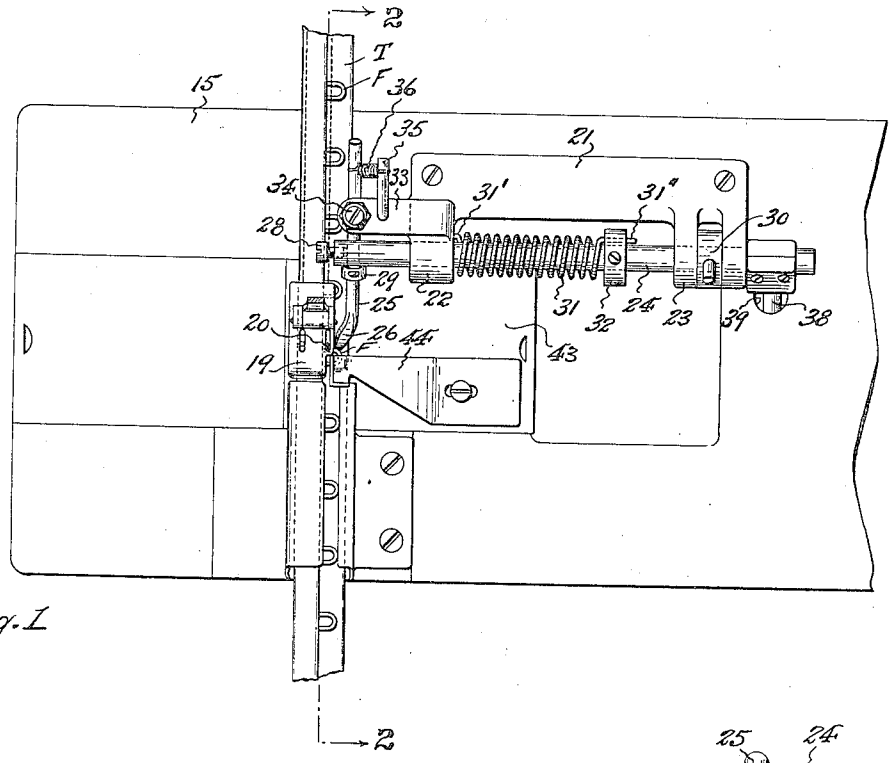


Fig. 1

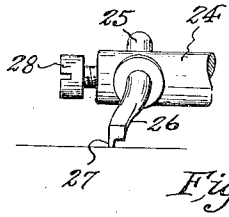


Fig. 3

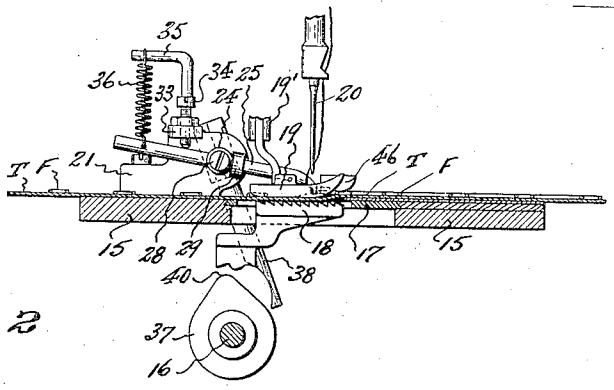


Fig. 2

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SEWING MACHINE FOR STITCHING OVER FASTENER MEANS

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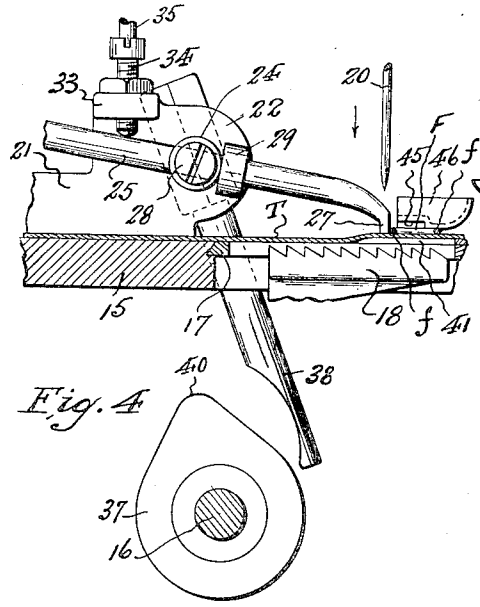


Fig. 4

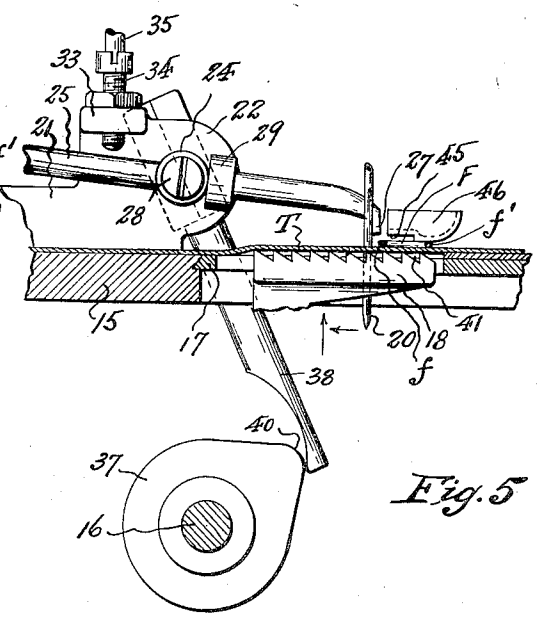


Fig. 5

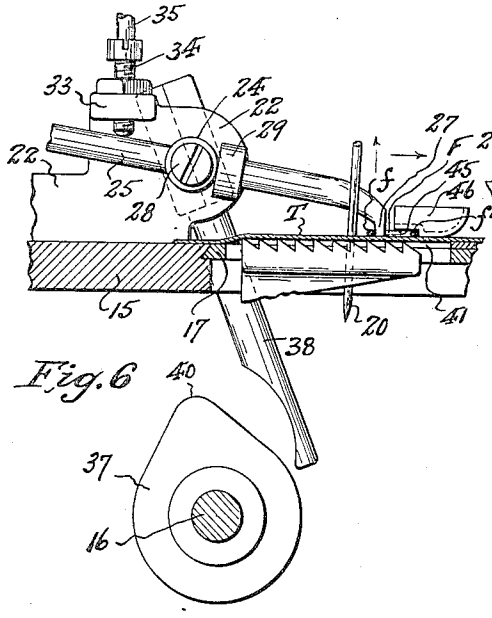


Fig. 6

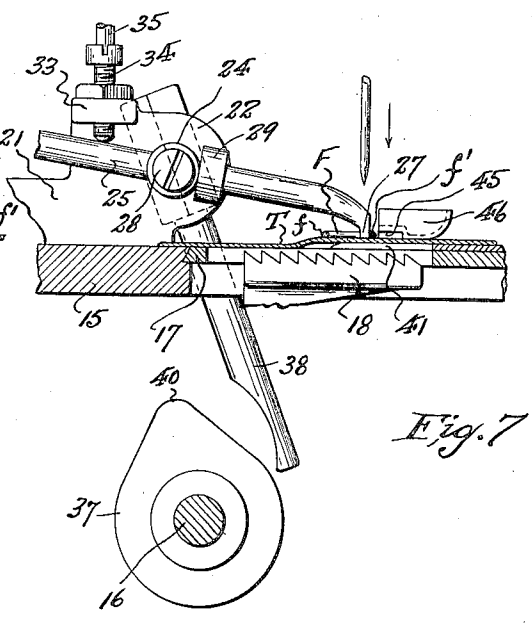


Fig. 7

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SEWING MACHINE FOR STITCHING OVER FASTENER MEANS

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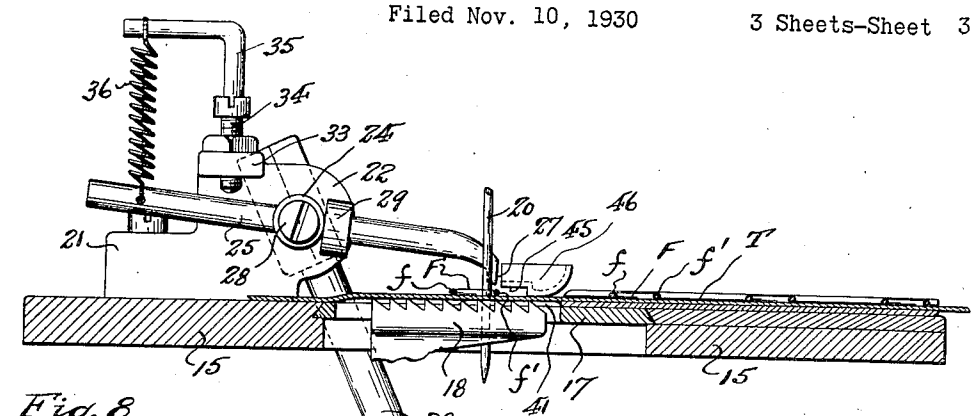


Fig. 8

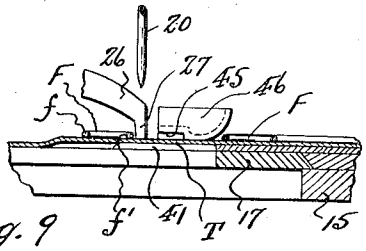


Fig. 9

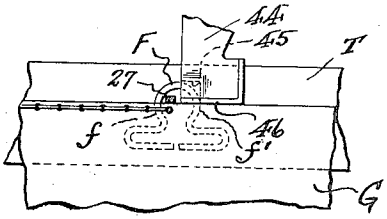


Fig. 10

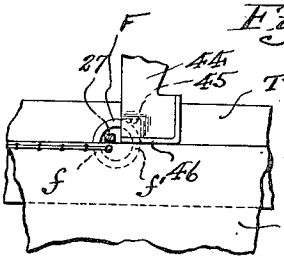


Fig. 11

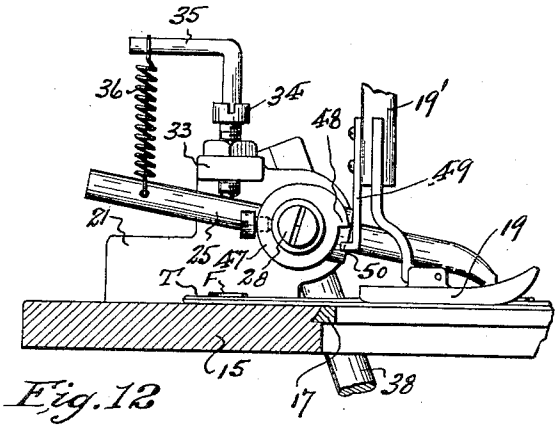


Fig. 12

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UNITED STATES PATENT OFFICE

1,942,903

SEWING MACHINE FOR STITCHING OVER FASTENER MEANS

Leo Roseman, Newark, N. J.

Application November 10, 1930
Serial No. 494,525

13 Claims. (Cl. 112—2)

This invention relates to attachments for sewing machines to adapt the same for stitching over fastener means, such e. g. as tape having metallic eye loops thereon, especially when providing such fastener means with reenforcing stitching, and when sewing the fastener means to garments.

In the use of sewing machines for sewing tapes having metallic fasteners thereon (and especially fasteners of eyelet or loop form) to garments, it has been found that there is risk of the sewing machine needle striking the metal fastener, resulting either in more or less frequent breaking of the needle, with consequent interruption of the work, or of nicking the fastener wire with consequent weakening of the fastener. To obviate these objections it has been proposed, in some machines, to provide means to shift the fastener out of the path of the needle prior to the descent of the latter preparatory to the formation of stitches traversing the sides or wires of the fastener; and in other machines, to provide means to bodily arrest or stop movement of the fastener at a point in advance of the path of needle descent and prior to such descent preparatory to the formation of stitches traversing the sides or wires of the fastener; a machine of the latter type being disclosed in my co-pending application for Letters Patent Ser. No. 249,028, filed January 24th, 1928.

The present invention also relates to improvements in machines of the second type; and the invention has for its principal objects to provide a simplified construction of fastener stop mechanism; to provide a stop mechanism which operates coincidently with each stitch forming reciprocation of the machine needle, so that no adjustment thereof is necessary to conform to variations in area of fastener openings or loops, and so that no adjustment thereof is necessary to conform the same to various spacings of the fasteners on the tape which carries them; to so position the actuating means of the stop mechanism as to offer no interference with the handling of the work when feeding the same to the sewing mechanism of the machine; and to provide a stop mechanism which will not ruffle or pucker the work during operation.

Another object is to provide a stop means for the purpose described which, in operation, will not tend to deform or injure the metallic fasteners.

Another object of this invention is to provide a novel construction of means to prevent displacement of the fasteners under ordinary back-pulling strains exerted by the machine operator during feeding of the work and fastener means to the sewing mechanism.

Other objects of this invention, not at this time more particularly enumerated, will become apparent in the following detailed description of the same.

An illustrative embodiment of the present invention is shown in the accompanying drawings, in which:—

Fig. 1 is a plan view of the novel fastener stop mechanism as applied to the sewing table of a sewing machine in operative relation to the sewing mechanism of the latter; Fig. 2 is a vertical cross section, taken on line 2—2 in Fig. 1; Fig. 3 is an end view of the stop finger of the stop mechanism, drawn on an enlarged scale; Figs. 4, 5, 6, 7, 8 and 9 are respectively fragmentary cross sectional views, on an enlarged scale, illustrating various stages in the operation of the novel fastener stop mechanism; Fig. 10 is a fragmentary plan view of tape provided with one form of eye-loop fasteners, showing certain elements of the stop mechanism in operative relation thereto; Fig. 11 is a view similar to that of Fig. 10 but showing tape provided with an eyelet form of fastener; and Fig. 12 is a fragmentary sectional view, showing means for automatically lifting the stop finger of the stop mechanism out of operative or service position when the presser foot of the sewing machine is raised to initially insert work beneath the same.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

Referring to said drawings, the reference character 15 indicates the sewing table or bed plate of any suitable type of sewing machine, beneath which is arranged the drive shaft 16 of the machine, from which the sewing mechanism thereof is driven in manner well known. The sewing mechanism includes the usual throat-plate 17, which is slotted to permit the feet-dog 18 to rise therethrough, so that the work to be stitched is gripped between the same and the usual spring tensioned presser foot 19, so as to be advanced by the intermittent movement of the feed-dog according to the length of stitch to be produced. Other suitable forms of known work feeding means may be employed, if desired. A vertically reciprocable sewing needle 20 is provided to cooperate with the shuttle mechanism (not shown) beneath the throat-plate in forming the completed stitches. While I have shown in the drawings, a machine having the oscillating

or walking type of sewing needle or needles, which enter through the work and swing forward with the work feeding movement of the feed dog, then rise and swing back preparatory to again descending through the work, to thus complete a stitch formation; I do not limit myself to such arrangement, since my invention is equally applicable to and can be advantageously employed with the ordinary non-oscillating vertically reciprocating sewing needle arrangement.

The novel stop mechanism embodying the principles of this invention, comprises a bearing bracket 21, which is suitably secured to the rearward or far side of the bed plate 15 and to the right or inward side of the sewing mechanism. Said bearing bracket is provided with longitudinally spaced bearing members 22 and 23 in which is journaled a rock-shaft 24 extending at right angles to the line of movement of work fed across the sewing mechanism of the machine. Extending through the outer end portion of said rock-shaft 24, at right angles to the axis thereof, and consequently parallel to the line of movement of work fed across the sewing mechanism of the machine, is a stop arm 25, the same having a downwardly and outwardly pitched free end portion 26, which terminates in a downwardly directed stop-finger 27 of reduced width. By longitudinally adjusting said stop-arm 25 relative to the rock-shaft 24, the stop-finger carrying end thereof may be so positioned as to dispose the forward face of the stop-finger 27 in a plane in front of the plane of the descending movement of the sewing needle 20 of the machine sewing mechanism. In order to fix the stop-arm in such adjusted operative position, a set-screw 28 is provided in the outer end of the rock-shaft 24 to bind upon the stop-arm. In addition to this a collar 29 carrying a set-screw, is tightened on the stop-arm to abut the forward side of the rock-shaft, thus additionally securing the stop-arm, and preventing rearward displacement of the stop-finger 27 from operative position. In order to adjustably locate the stop-arm to dispose its stop-finger 27 in desired operative position, laterally adjacent to the sewing needle 20, the bearing member 23 is made of bifurcated form, the form of which embraces a collar 30 which is suitably fixed to the rock-shaft 24, to thereby hold the rock-shaft in that longitudinally adjusted position calculated to dispose the stop-finger of said stop-arm in desired laterally adjacent relation to the sewing needle 20. Spring means is provided to yieldably urge the stop-finger carrying end of said stop-arm toward the bed-plate of the machine, and consequently toward the work fed upon the latter across the sewing mechanism of the machine. Such spring means may be variously designed and applied. As an example of one operative arrangement of such spring means, I have shown a helical spring 31 wound around the rock-shaft 24, one terminal 31′ of which is fixed in and to the outer bearing member 22, and the other terminal 31″ of which is anchored to a collar 32 secured to the rock-shaft. The tension of this spring 31 applies torque to said rock-shaft in a direction adapted to swing the stop-finger carrying end of the stop-arm toward the bed-plate of the machine, and toward the work moved over the same. In order to limit the downward movement of the stop-finger carrying end of the stop-arm 25, so as to prevent the stop-finger 27 from bearing heavily upon the work, with risk of obstructing free movement thereof to and past the sewing mechanism, and yet to so position said stop-finger, that the same will nevertheless operatively engage projecting fastener devices to be stitched across, an adjustable limiting stop means is provided. Preferably this limiting stop means comprises, an arm 33 rigidly connected with and extending forwardly from the bearing bracket 21 to overhang the normally upwardly urged rearward end portion of said stop-arm 25. Adjustably mounted in said arm 33 is a stop-screw 34 adapted to be engaged by said rearward end portion of the stop-arm 25, to thereby limit upward swinging movement thereof, with consequent limitation of downward swinging movement of the forward stop-finger carrying end of said stop-arm 25. In order to increase the spring tension which normally urges the rock-shaft 24 and stop-arm 25 to operative stop-finger disposing position, and to assure rapid return of said stop-finger to operative position after timed fastener releasing lift thereof occurs, I may provide additional spring means, comprising an anchor-post 35, carried by a suitable part of the bracket member 21, or otherwise mounted and fixed, between which and said rearward end portion of said stop-arm 25 is engaged a pull-spring 36. It will be obvious, that both the helical spring 31 and the pull-spring 36 may be together employed, or either one or the other thereof may be alone employed, as the positioning and tensioning means for the stop-arm 25.

Means are provided for actuating the stop-arm 25 synchronously with each stitch-forming operation of the sewing mechanism, but in such timed relation to the feeding movement of the latter as to operatively dispose the stop-finger 27 in fastener arresting position prior to the descent of the needle by which each stitch forming operation is begun, and so as to release or raise the stop-finger 27 from fastener arresting position to permit the forward feeding movement of the fastener. The means for so actuating the stop-arm 25, in preferred form, comprises a cam 37 which is fixed on and rotated by the drive shaft 16 of the machine. Fixed on the inner end of said rockshaft 24 is a lever member 38, which extends downwardly through an opening 39 in the bed plate 15, so as to dispose its free end in the path of rotation of the nose 40 of said cam. Inasmuch as the drive shaft makes one complete revolution to each stitch forming operation of the sewing mechanism driven thereby, it will be obvious that the stop-arm mechanism will be actuated, at the proper moment, to release or raise the stop-finger 27 during each stitch forming operation; as a consequence of this, the length of stitch produced may be varied at will, without disturbing the timed operation of the stop-arm mechanism, which will therefore function properly regardless of the particular length of stitch formed in connection with any given work, and regardless of the longitudinal spacing of the fasteners.

Formed on the inner marginal portion of the throat-plate 17, above which the stop-finger 27 is located and operates, is a lift-projection or step 41, the height of which approximates the maximum rise of the feed-dog 18, when engaging the work to feed the same forward during the stitch forming operations. The function of this lift-projection or step 41 is to support the fastener tape and fasteners thereon against dropping away from and thus possibly escaping the stop-finger 27, when the feed-dog is in lowered position.

When the fastener means is of tape form, upon which the fastener devices are mounted in desired spaced apart relation, it is desirable to provide a channeled guide-plate 42, which extends from the forward side of the bed-plate toward the sewing mechanism, and through which the fastener tape may be led and guided to said sewing mechanism.

Suitably mounted, preferably upon the inner slidable cover plate 43, which in part, covers the opening in the bed-plate 15, which gives access to the underlying shuttle devices of the sewing mechanism, is a combined stop-plate and garment gauge 44. The free end of this stop-plate is disposed to overlap the fastener tape, and is provided on its under side with a stop-socket 45. At the free extremity of said stop-plate is suitably formed an up-standing vertical flange which provides a gauge-portion 46 against which the edge of a garment, to which the fastener tape is to be stitched, may be run so as to assure the proper overlapping of garment edge and fastener tape body, through the overlapped portions of which the joining stitching is to be run, as well as to prevent the garment edge from passing beneath the fastener stop means with resultant interference with its proper cooperation with the fasteners. The underside of the end portion of said stop-plate 44, at the side or edge thereof toward the front of the bed-plate, is upwardly chamfered or turned to permit the fastener tape to ride thereunder. The stop-plate 44 is made of spring metal, so that its free end portion yieldably bears downwardly upon the fasteners of the tape passing under the same. By reason of such tensional character, the stop-plate exerts a slight frictional drag upon the metallic fastener devices. This frictional drag tends, first, to keep the tape flat and smooth as it moves toward the sewing mechanism of the machine, and, second, it tends to predispose any fasteners, which may be loosely attached to the tape, in a desired normal position prior to arriving at the stop-finger 27. The stop-socket 45, at proper times, will engage the fasteners of the tape, to hold the same against back-pulling strains which may be exercised by the operator, when stretching the garment to assure desired attached relation of the fastener tape to the edge of the same.

In the operation of the mechanism, fastener tape T having suitably attached thereto and spaced thereon metallic fasteners F, as, for example, the eye-loops of hook and eye fastening combinations, is passed along the guide-plate 42 to extend toward the sewing mechanism. The garment (not shown, except in Figs. 10 and 11) to which the tape is to be stitched, is overlaid upon the tape, with its margin guided against the gauge-portion 46. The forward end of the tape and garment are introduced between the presser foot 19 and feed-dog 18 in the usual manner, whereupon operation of the machine is begun by the operator.

The stop-arm 25 is normally disposed with its stop-finger 27 in lowered position until the needle descends and penetrates the work preparatory to a feeding impulse determining the length of stitch formed; the stop-arm 25 being momentarily raised to lift the stop-finger 27 preparatory to the formation of a stitch traversing a metal part of the fastener; this being accomplished at the proper moment by the passing engagement of the nose 40 of the cam 37 with the end of the lever member 38, whereby the latter is swung to rock or turn the rock-shaft 24 against the tension of springs 31 and 36, thus in turn swinging upward the operative end of said stop-arm 25. This cycle of operation occurs during the formation of each and every stitch, regardless of whether a given formed stitch traverses the wire sides of an eye-loop F or not. As a consequence of the operation of the stop-mechanism coincidentally with each stitch formation, the stop-mechanism is always ready to function in connection with the metallic eye-loops F no matter what the longitudinal spacing thereof upon the tape may be, and no matter what the particular length of the stitch formation may be, all of which is very desirable, as compared with stop-mechanism which must be readjusted in time of its operation, each time tape having different eye-loop spacing is used, or each time fasteners of different widths or shapes are used.

As an eye-loop F is carried forward to a point where the next stitch formed will be required to be carried over or across the leading wire side *f* thereof, the same (if it tends to move into the needle path) is engaged and stopped by abutting against the lowered stop-finger 27, in a position slightly in advance of the path of descent of the sewing needle 20, being thus automatically restrained or prevented from getting into the path of needle descent prior to the downward stroke of the needle, and being so held from passing into or across such path until the needle descends at least far enough to pass its point downwardly beyond the plane of the metallic eye-loop. This is illustrated in Fig. 4 of the drawings.

Upon completion of the needle descent to the extent sufficient to penetrate the work, and preparatory to a work advancing feeding impulse of the feed-dog 18 which rises to work gripping position, the nose 40 of cam 37 engages the lever member 38 so as to rock the rock-shaft 24 and swing up the operative end of the stop-arm 25, thereby lifting the stop-finger 27 out of the advancing path of the eye-loop F (see Fig. 5). The raised feed-dog 18 and needle 20 are now moved forward to advance the work for a distance equivalent to the length of stitch to be formed, whereupon the eye-loop is carried forward, to pass its leading wire side *f* beneath the raised stop-finger 27 and beyond the path of needle descent, whereupon the stop-finger 27 is lowered behind the leading wire side *f* (see Fig. 6). At the same time, the advancing movement of the eye-loop carries the rear or trailing side thereof into registration with the stop-socket 45 of the stop-plate 44, the down swinging tension of which engages the eye-loop within the stop-socket 45 (also see Fig. 6). This engagement of the eye-loop braces the same against any back pulling strains which may be exerted by the operator in manipulating the work, and in addition to the further obstruction to such back pulling afforded by the back of the stop-finger 27, when lowered behind the leading wire side *f*, prevents any rearward displacement of the eye-loop from such cause. When the eye-loop F is of straight sided or symmetrical U-shape (as shown in Fig. 1), the stop-finger 27 alone is usually adequate to obstruct or prevent backward displacement sufficient to retract the leading wire side *f* into the descending path of the needle; when, however, eye-loops F having curved or bowed sides, as F in Fig. 10, or eye-loops of circular eyelet form, as F in Fig. 11, are stitched over, owing to the back curvature of the leading sides at points forward of the plane of the rear face of the stop-finger 27, the additional obstruc-

tion afforded by the stop-socket 45 of the stop-plate 44 is of advantage, since it more positively holds such formations and eliminates risk of tipping or tilting the curved sides of the eye-loop toward the needle, with risk of thus carrying such parts into the path of needle descent.

Upon completion of the work feeding movement, the needle 20 is up-drawn and swung back into alignment with its vertical path of descent, while at the same time the feed dog is lowered and retracted to normal initial position. On the succeeding descent of the needle 20, the same passes downward within the interior of the eye-loop F and behind the leading wire side *f* thereof, thus carrying the stitch across the latter part.

Usually the length of stitch formation is such that one or more stitches are formed between the leading wire side *f* and the trailing wire side *f'* of the eye-loop F. As the eye-loop is carried forward to a point where the next stitch formed will be required to cross the trailing side *f'* thereof, such trailing wire side is engaged and stopped by abutting against the lowered stop-finger 27 (which at this time lies within the loop of the eye in front of the advancing trailing wire side *f'*). The trailing wire side *f'* is thus stopped in a position slightly in advance of the path of descent of the sewing needle 20, being thereby automatically restrained or prevented from getting into the path of needle descent prior to the downward stroke of the needle, and is so held from passing into or across such path until the needle descends at least far enough to pass its point downwardly beyond the plane of the eye-loop (see Fig. 7). After the needle so descends another feeding impulse is imparted to the work; the stop-finger 27 being raised out of obstructing relation to said trailing side wire *f'* in the manner hereinbefore described (see Fig. 3). After the feeding impulse is completed the needle 20 is again up-drawn and swung back into alignment with its vertical path of descent, so that, when again descending, it will pass downward behind the trailing wire side *f'*, thus carrying the stitch across the same.

After the stitch forming feed of the work is initiated, the stop-finger 27 returns to normal operative position behind the trailing wire side *f'*, over which the stitch is to be carried, whereby the rearward face of said stop-finger 27 is disposed to obstruct any backward movement of the eye-loop F under any back pulling strains which may be exerted by the operator upon the work.

From the above description of the construction and operation of the novel fastener stop-mechanism, it will be obvious that there is no necessity for moving the wire sides of the eye-loop out of the path of needle descent, for the reason that such parts are previously and positively stopped, and can not enter or cross the path of needle descent until downward movement of the needle is completed at least to an extent sufficient to carry the needle point below the plane of the eye-loop.

The stop-mechanism is quick-acting, that is, its obstructing effect can be and is nicely timed so that no undue restraint or strain is exerted upon the eye-loops, but only such momentary restraint as is sufficient to prevent its wire sides from entering the path of needle descent prior to downward movement of the needle. As a consequence, tendency to deform the eye-loops or loosen the same from their attached relation to a tape is eliminated.

The additional function of the stop-finger 27 whereby it alone or in conjunction with the stop-plate 44 holds the eye-loops against backward displacement under any back-pulling strains exerted by the operator upon the work is of considerable advantage. In this connection the stop-plate 44, with respect to its function of obstructing backward displacement of the eye-loops, independently of the particular means employed to keep the wire sides of the eye-loop out of the path of the descending needle, is in and of itself a novel and important feature of this invention.

Although in the broader aspects of my invention I do not desire to limit myself to the particular means shown for actuating the stop-arm 25 and its stop-finger 27, yet from the more specific standpoint, the arrangement whereby these parts are moved to operative position by spring pressure and released by a positive cam action is of considerable advantage, since it assures rapidity of action desired, while permitting very delicate adjustment with respect to the moment of release of the stop-finger relative to needle movement; and, furthermore, the stop actuating mechanism is reduced to great simplicity, having very direct relation to the drive shaft of the machine. In addition to this, the construction of the stop devices and actuating mechanism therefor is such that it permits location thereof at the back or rear side of the machine, in which location the same offer no obstruction to or interference with the manipulation of the work by the machine operator.

Since the stop mechanism is adapted to operate in synchronous relation to each and every stitch forming operation of the sewing mechanism, the same functions efficiently notwithstanding either variation in the spacing of fasteners on the carrying tape or variation of the length of stitch formed; and, in fact, the stop mechanism so operates that very short stitch lengths may be employed, which makes for a more secure joining of fasteners and garments.

Another advantage which may be referred to is that the stop-finger cannot pucker or ruffle the fastener carrying tape, but, quite the contrary, tends to smooth out the same before stitch formation is completed.

It is sometimes desirable to provide means whereby the lifting of the machine presser foot, will automatically lift up the stop-arm 25 and its stop-finger 27, such arrangement being a convenience when starting the work into the machine in operative relation to the sewing mechanism. One form of such means is shown in Fig. 12, wherein the outer end of the rock-shaft 24 is extended to a point behind the presser-foot bar 19', and is provided with a collar 47 having a circumferential projection or tooth 48 on the side thereof toward said presser-foot bar 19'. Fixed on the presser-foot bar 19' is a lift-plate 49 having a tongue 50 at its lower free end which projects toward the collar 47, and beneath the projection or tooth 48 thereof. When the presser-foot 19 is lowered to normal operative position, the tongue 50 is spaced downwardly from the projection or tooth 48 a sufficient distance to allow for the vertical play of the presser foot under the feeding impulses of the feed-dog 18, as well as for variation of operative position of presser foot due to variation in thickness of material being stitched over. When the presser-foot is raised to inoperative position, the tongue 50 is carried into lifting engagement with the projection or tooth 48, thereby imparting to the collar 47 and rock-shaft 24 a rotative movement against the tension of the spring means 31 and

36, and consequently producing an up-swinging movement of the stop-arm 25 and its stop-finger 27 simultaneously with the upward movement of the presser-foot 19; all whereby the work may be conveniently entered beneath both the presser-foot and stop-finger 27, these parts resuming operative position when the raised presser-foot bar 19' is again released.

I am aware that many changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction of the same, without departing from the scope of this invention as described in the foregoing specification, and as defined in the appended claims. Hence, I do not limit this invention to the exact arrangements and combinations of the various devices and parts as set forth in the foregoing specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:—

1. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle; a stop-mechanism having an oscillatable stop means disposed at one side of the path of needle descent in opposition to the movement of fasteners as carried toward said sewing mechanism by said work feeding means, said stop means having its front face in a plane in advance of the path of needle descent; and means to produce operative substantially vertical oscillation only of said stop means in synchronism with each stitch forming operation of said sewing mechanism.

2. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle; a movable stop-arm having a dependent stop-finger disposed at one side of the path of needle descent in opposition to the movement of fasteners as carried toward said sewing mechanism by said work feeding means, said stop-finger having its front face in a plane in advance of the path of needle descent; means to raise and lower said stop-arm thereby lifting said stop-finger substantially in a vertical plane transverse to the path of fastener movement; and means to actuate said last mentioned means in synchronism with each stitch forming operation, so as to release the fastener for feeding movement, and so as to return the stop-finger prior to the ending of such feeding movement.

3. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle; a drive shaft therefor; a pivoted stop-arm having a dependent stop-finger disposed at one side of the path of needle descent in opposition to the movement of fasteners as carried toward said sewing mechanism by said work feeding means, said stop-finger having its front face in a plane immediately in advance of the plane of needle movement; means to raise said stop-arm thereby lifting said stop-finger substantially in a vertical plane transverse to the path of fastener movement; and means actuated by said drive shaft, synchronously with each stitch-forming operation of said sewing mechanism, to operate said raising means after the point of the needle has passed below the plane of fastener movement.

4. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle, a drive shaft therefor, a rock-shaft mounted rearwardly and inwardly of said sewing mechanism, a stop-arm carried by said rock-shaft so as to be vertically oscillated thereby, said stop-arm having its forward end disposed at one side of said needle, a stop-finger dependent from the forward end of said stop-arm, and normally disposed in opposition to the movement of fasteners as carried toward said sewing mechanism by said work feeding means, and having its front face in a plane immediately in advance of the plane of needle movement, spring means for yieldably holding said rock-shaft and stop-arm so as to normally dispose said stop-finger in lowered fastener arresting position, and a timing cam means actuated by said drive shaft for operating said rock-shaft to raise said stop-arm and thereby lift said stop finger in a substantially vertical plane only.

5. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle, a drive shaft therefor, a rock-shaft mounted rearwardly and inwardly of said sewing mechanism, a stop-arm carried by said rock-shaft so as to be vertically oscillated thereby, said stop-arm having its forward end disposed at one side of said needle, a stop-finger dependent from the forward end of said stop-arm and normally disposed in opposition to the movement of eye fasteners as carried toward said sewing mechanism by said work-feeding means, and having its front face in a plane immediately in advance of the plane of needle movement, said stop-finger having a cross-sectional area less than that of the interior of said eye fasteners so as to be capable of entering the latter in stopping relation to the trailing wire sides thereof at proper times, and means actuated by said drive-shaft for operating said rock-shaft to raise said stop-arm and thereby lift said stop-finger in a substantially vertical plane only after needle descent and preparatory to stitch forming advance of the work.

6. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle, a drive shaft therefor, a rock-shaft mounted rearwardly and inwardly of said sewing mechanism, a stop-arm carried by said rock-shaft so as to be vertically oscillated thereby, said stop-arm having its forward end disposed at one side of said needle, a stop-finger dependent from the forward end of said stop-arm and normally disposed in opposition to the movement of eye fasteners as carried toward said sewing mechanism by said work-feeding means, and having its front face in a plane immediately in advance of the plane of needle movement, said stop-finger having a cross-sectional area less than that of the interior of said eye fasteners so as to be capable of entering the latter in stopping relation to the trailing wire sides thereof at proper times, spring means for yieldably holding said rock-shaft and stop-arm so as to normally dispose said stop-finger in lowered fastener arresting position, and means actuated by said drive shaft for operating said rock-shaft to raise said stop-arm and thereby lift said stop-finger in a substantially vertical plane only after needle descent and preparatory to stitch forming advance of the work.

7. In a sewing machine for stitching over tape having eye-fasteners thereon, means for advancing the tape to the stitching mechanism of the machine, means for preventing the sides of the eye-fasteners from lodging in the path of the machine sewing needle prior to downward movement thereof, and an upwardly yieldable stop-plate in advance of the stitching mechanism hav-

ing means to engage the rear sides of eye-fasteners to hold the same against retraction under back-pulling strains.

8. In a sewing machine for stitching over tape having eye-fasteners thereon, means for advancing the tape to the stitching mechanism of the machine, means for preventing the sides of the eye-fasteners from lodging in the path of the machine sewing needle prior to downward movement thereof, and an upwardly yieldable stop-plate in advance of the stitching mechanism, said stop-plate bearing tensionally upon said fastener tape so as to hold the same smooth as it advances to the stitching mechanism and at the same time serving to retract mis-positioned eye-fasteners to normal positions.

9. In a sewing machine for stitching over tape having eye-fasteners thereon, means for advancing the tape to the stitching mechanism of the machine, means for preventing the sides of the eye-fasteners from lodging in the path of the machine sewing needle prior to downward movement thereof, and in upwardly yieldable stop-plate in advance of the stitching mechanism, said stop-plate bearing tensionally upon said fastener tape so as to hold the same smooth as it advances to the stitching mechanism and at the same time serving to retract mis-positioned eye fasteners to normal positions, said stop-plate being further provided with means to engage the rear sides of eye-fasteners to hold the same against retraction under back-pulling strains.

10. In combination, a sewing mechanism, including work-feeding means and a cooperating reciprocating needle; a normally lowered stop-means in opposition to the movement of eye fasteners as carried toward said sewing mechanism by said work-feeding means, said stop means being capable of entering the interior of said eye fasteners, said stop means having a forward stop face in a plane in advance of the plane of needle movement and a rearward stop face in a plane back of the plane of needle movement; and means to produce timed release of said stop means adapted to impart substantially vertical oscillations only thereto.

11. In combination, a sewing mechanism, including work feeding means and a cooperating reciprocating needle; a spring positioned pivoted stop-arm having a normally lowered stop-finger in opposition to the movement of eye fasteners as carried toward said sewing mechanism by said work-feeding means; adjustable means for determining the normal lowered position of said stop finger; and means to produce timed release of said stop-arm and its stop-finger adapted to impart substantially vertical oscillations only to the latter.

12. In a sewing machine for stitching over tape having eye-fasteners thereon, means for advancing the tape to the stitching mechanism of the machine, vertically oscillatable stop-means for preventing the sides of eye fasteners from lodging in the path of the machine sewing needle prior to downward movement thereof and a gauge means independent of said tape advancing means and adjacent to said sewing needle against which the edge of material to be stitched to said tape runs and by which it is guided so as to be withheld from interfering with said fastener stop-means.

13. In combination, a sewing mechanism, including work-feeding means and a cooperating needle; vertically oscillatable stop means disposed in the path of movement of eye fasteners as carried toward said sewing mechanism by said work-feeding means; means to produce timed release of said stop means; and a gauge means independent of the work-feeding means and adjacent to said needle against which the edge of material to be stitched to said eye fastener material runs and by which it is guided so as to be withheld from interfering with the operations of said fastener stop means.

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