

July 2, 1940.

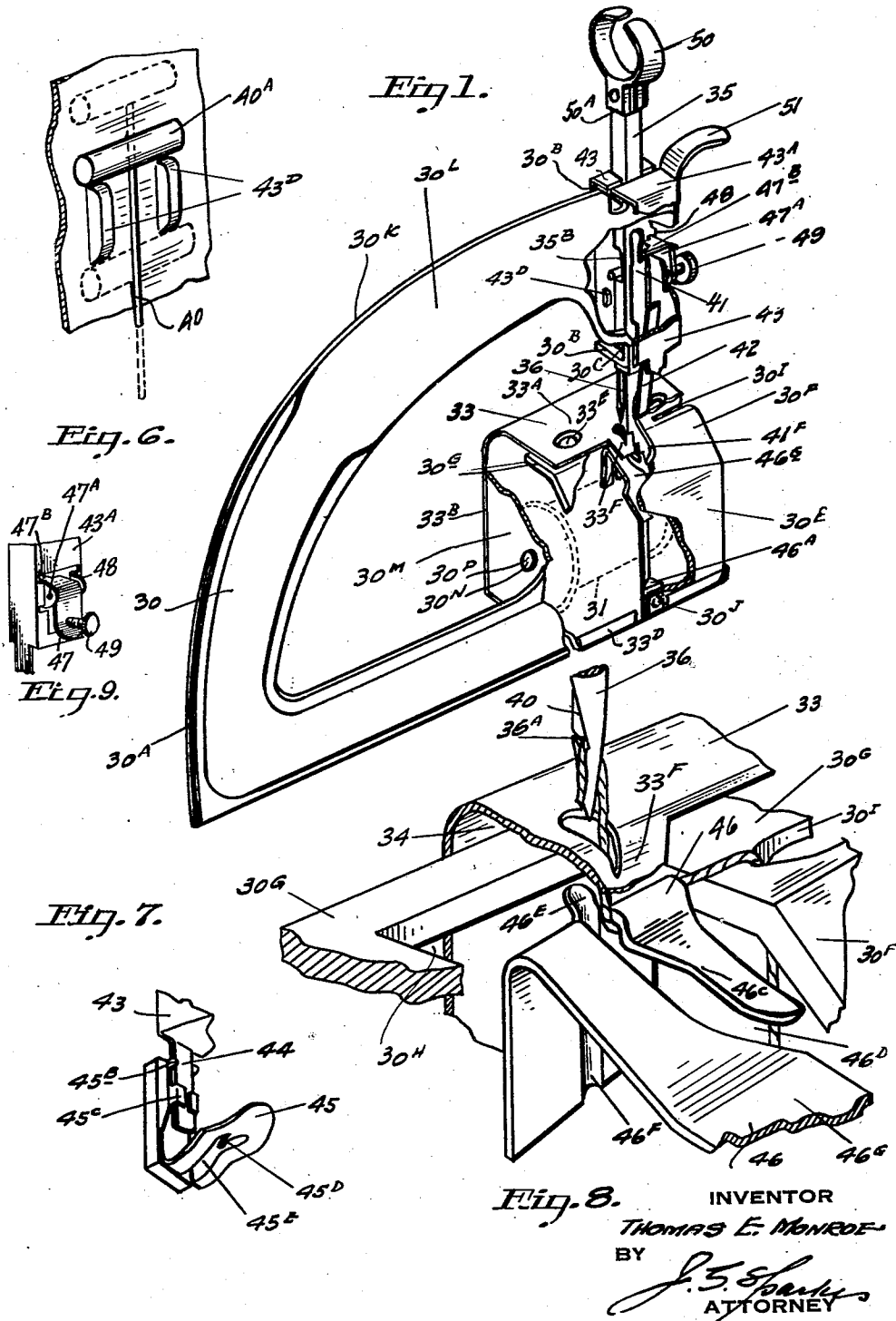
T. E. MONROE

2,206,484

HAND SEWING MACHINE

Filed Nov. 19, 1936

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

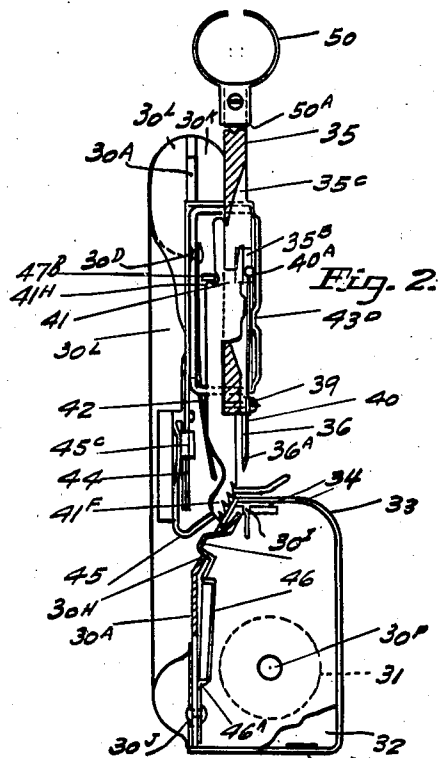


Fig. 2.

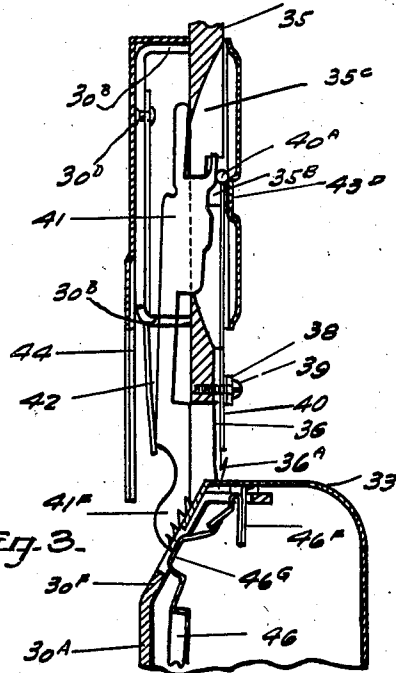


Fig. 3.

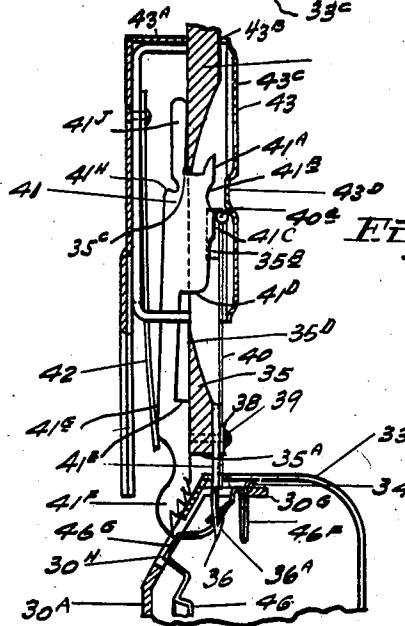


Fig. 4.

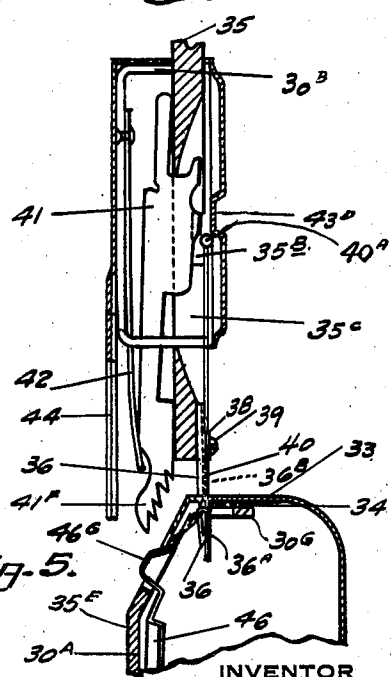


Fig. 5.

INVENTOR
THOMAS E. MONROE
BY
J. E. S. S. S.
ATTORNEY

UNITED STATES PATENT OFFICE

2,206,484

HAND SEWING MACHINE

Thomas E. Monroe, Rye, N. Y.

Application November 19, 1936, Serial No. 111,718

15 Claims. (Cl. 112—169)

This invention relates to sewing machines and in particular to small sewing machines of a portable nature. The principal object of my invention is to devise a machine which can be operated entirely by one hand, and is so light and portable that it may be carried in a hand-bag. The idea is to convey the machine to the work, rather than to be confined to a comparatively heavy machine, to which the work must be taken. Much of the sewing which is now done by hand can be done with my device in a most uniform and practical manner. For this reason my machine is designed without a base or any means or stability other than holding in the hand of the operator. The construction herein described is of such a nature as to produce a machine which is of the greatest rigidity, and at the same time is very lightweight, and so compact in size as to make it a pocket-sized machine. For this reason I have preferred to make the machine almost entirely from stamped metal parts, with a frame of reinforced bridge-like construction. On account of its simplicity and in particular on account of its special adaptation to stamped work, it is possible to produce the machine at a very low cost.

The main feature of the preferred design herein described is that the entire needle operating mechanism is contained in one unit, and the thread handling mechanism is contained in another unit. The two units are so disposed as to permit the needle operating unit to co-act with the thread handling unit, merely by the contact of certain elements in the needle unit with elements in the thread unit. There are no mechanical connectings of any kind between the needle operating unit and the thread handling unit. This is entirely new in sewing machines, and presents a novel means of accomplishing some very important results. Furthermore, it greatly simplifies the mechanism, and permits the use of certain cam-operated movements which are most satisfactory for this type of work.

On account of the separation of the needle operating element from the thread handling element, it is possible to put the spool of thread in the table of the machine, wherein it is entirely self-contained, and the table is so constructed as to provide a unique method of threading the needle, without the necessity of passing the thread through an eye in the needle. In accomplishing this, I have designed a hook-type of needle, with a needle pin sliding therein, which opens and closes the hook on the needle at the proper positions in the stroke. Another fea-

ture which is especially desirable is in the feed-foot which moves the cloth along under the needle, as more specifically described later. This feed-foot is designed as a lever of the third class, adapted to operate off the needle bar in such a manner as to cause a pushing action against the cloth, and over a bevelled tongue extending downward from the table. This feed-foot is so constructed as to take care of all of the necessary control movements which are needed for the regulation of the length of the stitches, as well as the control of the needle pin. Another feature is the special design of the table which has a level surface on top to receive the cloth, and a downward formed angle to the rear, over which the cloth is pushed and fed. In all the descriptions hereafter, let it be understood that movements further described as to the front or forward mean toward the operator of the machine, whereas descriptions referring to the rear, or away from the machine, mean toward the side away from the operator, as shown in Figure 1. This feature is new in sewing machines and greatly facilitates the handling of the cloth over the old method of providing a straight horizontal feed. It permits the easy engagement and sewing of certain curved joinings of clothing. It is very easy to turn curves with this type of table, as compared with the standard machines.

Another improved development in the design which is new, is the weighted hold-down foot, which is so constructed as to slide downward to hold the cloth in position against the table, and to strip it from the needle on its upward stroke. As more specifically described below, the foot is of a special construction which permits it to immediately adapt itself to either thin or thick materials, and therefore to follow over seams at all times, providing the exact amount of pressure on the cloth. This is a very important advantage over the old spring-type foot, which increases the pressure when the thickness of the material increases.

With the above and the other apparent objects of invention in view, I have illustrated these features in the attached drawings, in which Figure 1 is a perspective view of the hand sewing machine, looking at the rear of the machine, that is, the side away from the operator when the table is in use, with a portion of the casing broken away to show the relative positions of certain internal parts.

Figure 2 is an end view partly in section, and looking from the right of Figure 1. In this view

the needle and feed-foot are at the top of the stroke.

Figure 3 is a similar view to Figure 2, enlarged, and showing the operating parts when the needle is about to enter the cloth.

Figure 4 is similar to Figure 3, but showing the needle at the bottom of its stroke and at its lowest position.

Figure 5 is a similar view to Figure 3, but shows the needle picking up the thread and ready for its upward stroke.

Figure 6 is a fragmentary view showing the arrangement of the cams formed on the slide cover and the relative position of the cross-bar on the needle pin.

Figure 7 is a perspective view of the weighted hold-down or stripping foot.

Figure 8 is a view partly in section, showing in detail the arrangement of the supporting table, and the thread-feeding elements.

Figure 9 is a perspective view showing the angle which acts as a stitch adjuster.

In the drawings, 30 is a formed steel handle preferably of a C-frame design. This handle is composed of a main frame, 30A, which is preferably a flat steel blank, relatively heavy. At its upper extremity, this blank is formed with two forwardly extending angles, 30B, and in which are cut notches 30C, to receive the needle bar. Likewise, a rivet hold, 30D, is punched at a position between the two angles for attaching the main spring. The lower extremity of the C-frame 30E is extended upward, then bent forward toward the operator to form an angle 30F, thence onward in a horizontal position to terminate in a flat shelf, 30G. At a position about central in the blank 30F, is pierced out an opening, 30H, adapted to clear the thread-feeding spring, as well as the needle. Toward the end of the plane 30G, is a thread-receiving notch, 30I. At a position about central in the lower extremity of the C-frame, a hole 30J, is pierced, to receive a rivet for attaching the thread-feed spring. In order to re-inforce this main frame, and to give the handle of the machine a round form which will be comfortable to the hand, I have stamped out two half-shells, 30K and 30L, which are spot-welded in a position to join them to the main frame. These handle shells are full-formed at their upper extremity in order to produce a round effect, comfortable to the hand, and at a position about half-way down the handle, they are formed into a ribbed construction with flanges which are used for spot-welding the handle shells to the frame, and this construction continues along the lower edge of the C-frame. The handle 30 has an extension 30M extending forward toward the operator, and forming a closure for one end of the thread table. A hole 30N is pierced in this closure, and a pin, 30P is riveted therein which provides a place for the spool of thread, 31. The outer end of the fabric table is closed with a separate piece, 32, which clips onto the table of the machine. Attached to the extension 30G, is the table 33, which has a horizontal face 33A, a vertical wall 33B, a lower horizontal wall 33C, and an upwardly turned edge, 33D. The face 33A has two bumps, 33E, pressed downward sufficiently to form a space, 34 between the table 33 and the main frame. The table 33 is properly spot-welded at these two bumps to the main frame. Likewise, the upward extended part, 33D is spot-welded to the main frame. Bar 35 is of a square section, adapted to slide in a vertical position,

back and forth in the notches in the bearing angles in the main frame of the machine. This bar is slotted at its lower extremity, 35A, to receive the needle 36, and likewise more deeply slotted (35C) at its center position for the purpose of receiving a flat stamped feed-foot, 41, at a somewhat central position, a horizontal slot, 35B is cut about half-way through the bar to provide shoulders for operating the cross-bar, or needle pin, hereinafter described in detail. In order to retain the needle in its slot, the needle is provided with two flat sides, which exactly fit the groove in the end of the bar and a small flat clamp, 38, provided with a screw 39, to hold the needle in a fixed position. The needle is of a special design, having a relatively thin sharp point on the front of which is formed a hook, 36A; in line with, and extending upward from the hook is formed a groove, 36B, on the face of the needle, of such a depth as to receive a needle-pin, 40, and to allow a free movement of the needle-pin when the needle is clamped. Thus the needle-pin is free to move up and down in the groove and relative to the needle and the bar, so that its end may form a closing and opening action at the point of the hook, and be able to retain or release the thread. In order to operate the needle-pin 40, the bar has a horizontal slot, 35B, before-mentioned, and the needle pin at its upper end has a cross-bar 40A which extends laterally through this slot, so that the cross-bar is engaged and moved upward or downward by the shoulders of the slot when the bar is operated. Operating through the rear of the central slot of the bar is the stamped feed-foot, 41, which acts with the bar and the table as a lever of the third class, with cam-shaped edges. This lever, starting at the top and at its front edge, has a contour which may be described in sequence as follows, a straight edge 41A extends downward for a distance, and then runs into a receding portion, 41B and from which the edge rises again to another flat edge, 41C, which is substantially parallel with 41A, thence the edge recedes downward for a distance, and terminates in a shoulder 41D, formed in a horizontal direction to the rear, thence downward as a straight edge to another shoulder 41E, formed by a substantially horizontal edge extending forward, thence the edge extends downward in a substantially vertical direction, and terminates in a number of serrations which extend at an angle toward the rear again, to form feeding teeth on the foot 41F. The purpose of these serrations is to act as points for pushing and feeding the cloth toward the rear of the machine. Following up the back edge of this same part, the edge extends forward for clearance, thence to the rear to form a cam-formed surface, 41G, which operates against the main spring, 42, thence straight upward and forward again to form a stop shoulder, 41H, which limits the stroke and the length of the stitch, thence upward to form a prong, 41J, which on its forward corner acts as the fulcrum of the lever against the bar, also its extreme end acts as a stop against the main frame. The top of the slot in the bar in which this lever operates forms a stop 35C, to regulate the upward motion of the lever and the bottom extremity of the slot forms a stop to regulate the downward motion of the lever. In order to press the lever over and keep it in contact with the needle bar at all times, as well as against the table with the foot at a position to be against the angular table, the main

spring, 42, is attached to the frame. In order to house and guide these parts, a formed tubular cover, 43, is clamped over the needle bar from the top. This cover consists of four panels entirely surrounding the mechanism at the upper frame. It has two top extensions, 43A and 43B, which are bent inward to cover the frame. It has, on the front side, impressed outwardly, an extending panel, 43C; this provides a space in which the cross-bar of the needle pin may have clearance to operate when pressed forward. At a predetermined position in this panel, are inwardly pressed two cam-like indentations, 43D. It will be noted that the distance between the shoulders on the feed-foot 41D, and 41E, is of the same dimension as the distance from the stop point 35D to the lower end of the bar 35. In actual practice, the distance on the foot is slightly larger, to allow for clearance in operating.

At the rear of the cover is a downwardly extending prong, 44, which is ribbed to strengthen and re-inforce it, and on which slides the weighted foot, which is so-formed as to extend forward and upward, thence parallel to the table top, then upward again at its forward extremity, 45. This foot is designed to hold the cloth down while it is being fed and to strip the cloth from the needle, when the needle makes its upward stroke. The prong on which the foot slides is straight, but the foot is attached to the prong and guided thereon by two small prongs, 45B, at the top, and two lower angle-shaped clamps, 45C, at the bottom, through which the prong extends. When the cloth is stripped by the foot, the part of the foot which engages the cloth being offset from its supporting prong 44, hitches against this prong and locks against an upward movement. The upward action of the needle therefore tending to pull the cloth upward, cannot move the foot upward with it against this hitching action. When the needle is descending and going through the cloth thus driving the cloth downward against the bed of the machine, the hitching action of the foot against the supporting prong 44 is no longer developed, and the foot falls by gravity against the upper surface of the cloth being sewed, and in this way continuously follows the cloth and guides it against the bed of the machine. Even though thick material be sewed, or if seams are encountered at various points in the sewing, the foot adjusts itself through this hitching and sewing action, always locking against an upward movement, and unlocking and following by gravity with a downward motion of the needle.

In order to prevent the cloth from working backward over the table the foot has a small prong 45D near the needle, which acts as a barb against this action. The hitching action referred to is obviously necessary to prevent the needle from lifting the cloth away from the table on its upward motion. However, if a thicker material, such as a seam, is encountered, the foot is actually lifted to accommodate the additional thickness through a successive number of strokes of the needle moving up slightly each time, and then in falling back to the original adjustment required for the thinner section of the material. However, this hitching action continues, acting as a friction to hold back the cloth against the upward stroke of the needle. This barb is formed downward and toward the rear of the machine. It will be noted in Figure 7 that the foot is slotted so as to permit the needle and the feed-foot to pass through the slot.

Referring to the thread-feeding part of the

machine, the spool of thread, 31, is placed on the pin and the thread is passed up through the notch, 30I, on the end of the frame, thence to a thread-feeding spring, 46, which is adapted to operate through the slot 30H, previously described in the frame. This feed-spring is made of spring material and at its lower end is riveted to the main frame and shortly above this position is bent at an angle, 46A, as shown in Figure 2, thence upward to a reversed bent position as shown in Figure 2. It is then bent forward toward the front of the machine at an angle of about 60 degrees, thence to the rear again, at approximately 90 degrees to the last bend, thence forward again at 60 degrees to a position which is below the table of the machine and thence downward in a vertical direction in line with the needle. This feed-spring has a hook 46C formed thereon, as shown in Figure 8, and is constructed by cutting inwardly from the side of the spring to an approximately central position. This cut-away is accomplished by an open slot, 46D, shown in Figure 8. At the end of this slot there is turned up and forward a safety-tab, 46E, later described in the operation. The purpose of this hook 46C is to receive the thread and to guide it while it is being passed, as shown in Figure 8. In the back of the down-turned edge of the thread-feeding-spring and immediately below the safety tab, is a groove, 46F, formed in the spring. This groove is for the purpose of receiving the hook of the needle in its travel back and forth against the spring as later described. It will be noted that in connection with this spring a cam-like extension, 46G, formed by the bends in the spring, as shown in Figure 1, extends through the notch 30H, in the frame of the machine. In order to regulate the motion and the length of the stitch made by the machine, an angular piece, 47, with trunnions, 47A, is mounted in 2 ears, 48, formed on the end panel, and bent outward to form a bearing. The one end of this angle, 47B, extends through the opening formed as a result of cutting out and forming the ears, and its end co-acts with the stop shoulder 41H, described on the feed-foot. The position of this end can be moved up and down, by the regulating screw, 49. If it is desired to make a long stitch, the adjusting screw is turned so as to permit the stop point on the angle to assume a high position, and if a short stitch is to be made, the screw is turned inward, which brings the end of the angle to its lowest position.

Obviously from this, any length stitch can be satisfactorily made on this machine, by the use of this regulating screw. The increase of the length of the stitch is insured by the additional rise of the needle shaft and the feed-foot which follows it. This increase in the stroke of the feed-foot when acting against the fabric moves the fabric through a greater distance per stitch, and also in consequence of this additional rise, a greater amount of thread is drawn up through the needle hole, thereby allowing more thread for the loop. In order to operate the machine, I have provided a thumb ring, 50, made from sheet metal which fastens to the top of the needle bar, and which is adjustable so as to fit any sized thumb tip. The cover also has a prong, 51, extending over the end to provide a rest for the index finger of the hand. The proper way to hold the machine is to place the thumb tip in the thumb ring and the index finger under the prong, 51, and the handle then grasped by the palm of the hand and the three remaining fingers. It

will be noted that the bottom edge of the thumb-ring, 50A, coacts with the tip of the cover, 43, to produce a positive stop for the needle-bar on its downward stroke. Likewise, on the upward stroke of the needle-bar, 35, and particularly when placing fabric in the machine, and the stitch-regulator has been thrown out of position, the clamp 38 forms a positive stop against the frame. It will be noted that when it is desired to place the fabric in the machine, starting with the needle bar at its lower position, the regulator stop is first thrown out of the way, the needle shaft is raised upward, and, frictionally aided by the curved shape of the main spring, carries the feed-foot with it to a point where the top of the feed-foot strikes the frame and is stopped thereby, and then the needle bar continues upward, until the clamp 38 strikes the lower part of the frame, and stops the needle bar. These distances are proportioned so as to leave the feed-foot still bearing against the back of the bar, 35, being held out away from the table.

In operation, referring to Figure 2, the needle bar is at the top of the stroke, and the foot is at its position nearest the front of the machine. In this view, the shoulder, 41E, may be seen lapped over the end of the needle bar, 35A. Likewise, the weight is in a position to hold the fabric under the needle. The needle pin is in position with its end against the barb of the hook. This means that the cross-bar on the needle-pin is then ahead of the cam-face, 41A, on the front of the feed-foot, and the fulcrum point on the feed-foot is resting against the bar. The main spring is pushing the foot against the shoulder and the fulcrum point at the top of the feed-foot. Likewise, the cross-bar on the needle pin is pushed forward into the panel on the front of the cover. Referring to Figure 3, the needle-bar has been pressed downward until the needle is ready to enter the fabric and the feed-foot at its serrated edge has come in contact with the angular cam-prong, 33F, on the table top. The feed-foot has been rocked backward against the main spring and about a fulcrum point on the shaft, as previously described. Meanwhile, the cross-bar on the needle pin has been trapped by the cam-indentations on the face of the cover, and the surface on the front of the feed-foot. Also, the feed-foot has pushed the thread-spring forward by reason of its contact with the cam-lobe, 45G. Referring to Figure 4, the needle-bar has been pressed further down until the stop point, 35C in the slot in the bar has approached the stop in the feed-foot, and the feed-foot itself has moved backward to its final position; its edge sliding up the rear face of the bar. At this point, the cross-bar on the needle pin has escaped around the resistance of the cam-indentations, and by means of the aid of the notch 41B, in the feed-foot until it has come in contact with the lower cam-face of the indentations, and against the next cam-lobe, 41C, on the face of the feed-foot. It will be noted that the needle has actually passed in this view down through the slot in the thread-feed-spring, but that the feed-spring is still far to the front, and has obviously carried the thread with it. During this motion the main spring has followed up the feed-foot throughout its entire action, and has accompanied the feed-foot from its fulcrum point previously described. Referring to Figure 5, the needle is at the point of returning back through the fabric, for friction carried the feed-foot up to a point where

the thread-feed-spring cam has been able to move backward again to its original position in Figure 2, and by this action has put the thread in a position ready to be received by the hook of the needle; the needle pin is still at the same position as shown in Figure 4, it being shown retained there by the cam-indentations 43D on the front of the cover. In other words, the thread-feed-spring with the thread has moved backward against the depressed needle, and the needle in passing upward slides in the groove 46F, and picks up the thread at this position; for a very short distance at this point of the operation, the hook is open, but on moving upward, the barbed end closes against the end of the needle pin. With the thread locked in position by the barb, and the needle pin, the entire bar moves upward to assume the original position as shown in Figure 2. It will be obvious that the end of the needle pin resting on the barb produces a positive relative action for the needle pin. The cycle of this operation may be repeated as often as there are stitches required, and it is only necessary in operating the machine to make sure that the stroke is completed both in its downward and upward motion. A further point in the successful sewing with this machine is that the feed foot be allowed to feed by itself, without pulling or pushing of the fabric.

The machine by this action produces a chain stitch which may be tied in the usual manner when the sewing has been completed.

Having thus described each action independently, the complete cycle, beginning with the feed-foot at the top position, as shown in Figure 2, the downward plunge of the needle bar carries the feed-foot over the cam-face on the table, drawing along with it the fabric, at the same time, the needle pin is carried down with the needle. At the point where the needle is about to enter the fabric, the feed-foot is released from the needle bar; also the cross-bar on the needle pin has engaged the cam on the cover, temporarily holding the needle pin in a fixed position, the needle bar continuing on down. Simultaneously with this action, the thread-feed-spring has been forced back, carrying the thread with it. The upper shoulder of the notch in the needle bar will engage the cross-bar of the needle pin and force it on down past and under the cam. On the reverse stroke, the feed-foot immediately releases the pressure on the thread-feed-spring, allowing it to snap back in its original position, where the hook in the needle will pick up the thread. The hook continuing on up will then engage the needle pin and carry it along, forming an eye, and hold the thread in the eye and protect the barb from the fabric, allowing the needle to carry the thread up through the fabric to the extreme upper end of the stroke, as allowed by the stitch regulator. Then at this point, the feed-foot will snap back in its original position. A repetition of this cycle may be continued to form in accordance with the number of stitches desired.

This application is a continuation in part of application filed by me for improvements in Hand sewing machines, Serial Number 10,665, and embodies improvement in the art thereof.

Having described my invention, what I claim as new, and desiring to secure by Letters Patent, is:

1. In a sewing machine, a reciprocating needle bar, a hooked needle mounted therein, a needle pin co-acting with the said needle, a feed-foot

operated from the bar, a fabric table with a needle hole therein, and a cam-shaped tongue formed thereon adapted to operate the feed-foot, means to support a spool of thread under the said table, and a thread-feeding spring substantially as described.

2. In a sewing machine, a C-frame, a reciprocating needle bar mounted in one end of the frame, a hooked needle mounted therein, a cam-controlled needle pin co-acting with the said needle, a feed-foot operated from the said needle bar, a thread-receiving and feeding mechanism mounted on the other end of the frame, comprising a fabric table, a needle hole therein, a cam-face formed on the table top adapted to co-act with the said feed-foot, at certain intermittent intervals in relation to the reciprocation of the needle.

3. In a sewing machine, a C-frame, a needle bar and fabric-feeding mechanism mounted in the one end of the said frame, a fabric supporting table and thread-feeding mechanism mounted on the other end of the said frame, the needle bar operating the fabric feeding mechanism which by actual physical contact with the thread feeding mechanism combines therewith to produce a stitching and sewing action.

4. In a sewing machine, a C-frame, a needle bar, a needle therein, a cam-controlled needle pin co-acting with the said needle, a feed-foot operated from the needle bar mounted in the one terminus of the frame, a fabric table, a needle hole therein, a cam-face on the said table to co-act with the feed-foot, and a thread-feeding spring to co-act with the said feed-foot and the said needle mounted in the other terminus of the said frame.

5. In a sewing machine, a C-frame, a reciprocating needle bar, a hooked needle mounted therein, a cam-controlled pin adapted to co-act with the said needle, a feed-foot operated by the said needle bar, means to control the relative movements of the fabric feed-foot to regulate the length of the stitch, the foregoing mounted on the one terminus of the said frame, and a fabric table, a needle hole therein, a cam-face formed on the said table to co-act with the said feed-foot, and means to feed a thread, in the other terminus of the C-frame.

6. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle pin slidably mounted and parallel thereto, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle pin and unlocked at certain operating positions by the said needle pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one side of the needle hook and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, the entire system being so mechanically controlled as to perform a cycle of stitching operations.

7. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle pin slidably mounted and parallel thereto, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle pin and unlocked at certain operating positions by the said needle

pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one side of the needle hook and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, and means to intermittently feed fabric under the said needle, the entire system being so mechanically controlled as to perform a cycle of stitching operations.

8. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle pin slidably mounted and parallel thereto, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one side of the needle hook and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, and means to strip the fabric from the needle on its upward stroke, the entire system being so mechanically controlled as to perform a cycle of stitching operations.

9. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle pin slidably mounted and parallel thereto, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle-pin and unlocked at certain operating positions by the said needle-pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one side of the needle hook, and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, and gravity impressed means to strip the fabric from the needle on its upward stroke, the entire system being so mechanically controlled as to perform a cycle of stitching operations.

10. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle-pin slidably mounted and parallel thereto, a fabric feed-foot, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one side of the needle hook and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, and means to regulate the stroke of the needle and the feed-foot, whereby the length of the stitch will be changed.

11. In a sewing machine, a reciprocating needle with a hook near the lower extremity thereof, a cam-controlled needle pin slideably mounted and parallel thereto, means to feed the thread into the path of the said hook, to be engaged by the said hook and locked at certain operating positions by the said needle pin, a fabric-supporting table having a thread and needle receiving opening defined by a cam forming wall through which the needle operates to throw the thread to one

side of the needle hook, and thereby in conjunction with the thread feeding mechanism form the necessary loop in the thread ready for the successive stroke of the needle, and gravity impressed means to strip the fabric from the needle on its upward stroke, the entire system being so mechanically controlled as to perform a cycle of stitching operations.

12. In a hand sewing machine, a C-frame, a reciprocating needle bar mounted in the upper extremity of the frame, a needle mounted in the end of the said bar, a hook near the end of said needle, a cam-controlled needle pin co-acting with the said needle-hook, a cam-operated feed-foot mounted adjacent to the said bar, and co-acting therewith, a fabric stripper operating from the said upper extremity, a fabric table with a thread-manipulating needle hole therein, a cam-face on the said table adapted to operate the said feed-foot, and a thread-feeding mechanism arranged under the table, these thread-handling mechanisms being mounted on the lower terminus of the said C-frame.

13. In a hand sewing machine, a C-frame, a reciprocating needle bar mounted in the upper terminus of the said frame, a hook type needle mounted on the lower end of the said bar, a cam-controlled needle pin co-acting with the said needle, an operating thumb piece mounted on

the upper end of the bar, a feed foot operated from the said bar and a fabric stripping foot suspended from the upper terminus of the C-frame, a fabric table, a thread-manipulating needle hole therein, a cam-face formed on the said table, adapted to co-act with the end of the feed foot, a thread-feeding spring mounted under the said table, and means to support a spool of thread.

14. In a sewing machine, a C-frame, a reciprocating needle bar, a hooked needle mounted therein, a mechanically controlled pin adapted to co-act with the said needle, a feed-foot operated by the said needle bar, a table formed on the lower extremity of the C-frame, means to mount a spool of thread under the said table, a feed-foot actuated thread-feeding spring mounted under the said table, and means formed in the table to guide the thread into the said thread-feeding spring.

15. In a sewing machine, a C-frame, a needle-operating and fabric-feeding device mounted in the one terminus of the said frame, a fabric table mounted on the other terminus of the frame, a needle hole in the table, a thread-feeding device mounted under the said table, the thread-feeding device being positioned for operation by pressure contact of the fabric feeding device therewith.

THOMAS E. MONROE.