

Oct. 24, 1939.

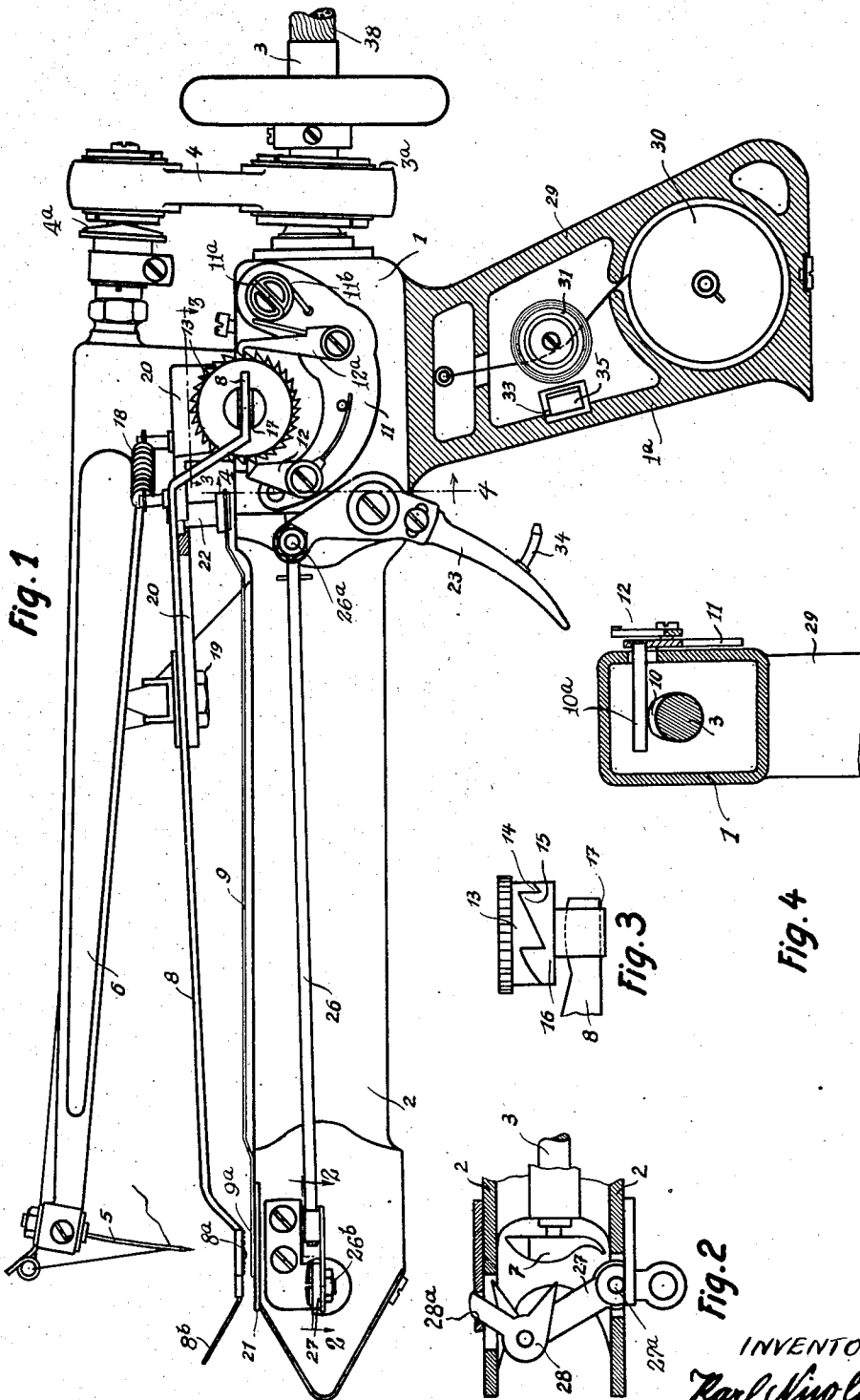
K. NICOLAY

2,176,977

HAND GUIDED MECHANICALLY DRIVEN INTERMITTENTLY OPERATED SEWING DEVICE

Filed Sept. 8, 1936

6 Sheets-Sheet 1



INVENTOR
Karl Nicolay

Oct. 24, 1939.

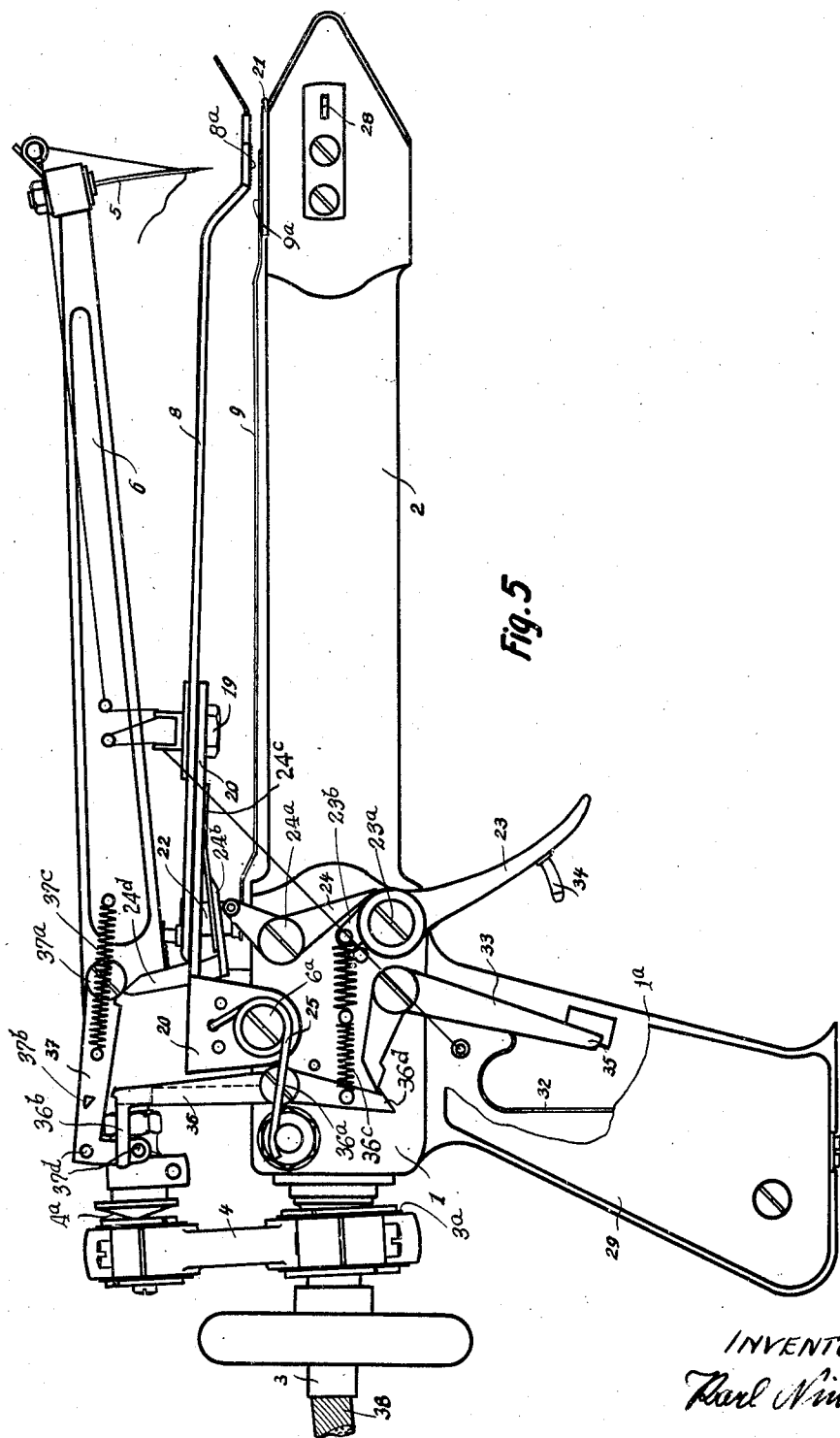
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6 Sheets-Sheet 2



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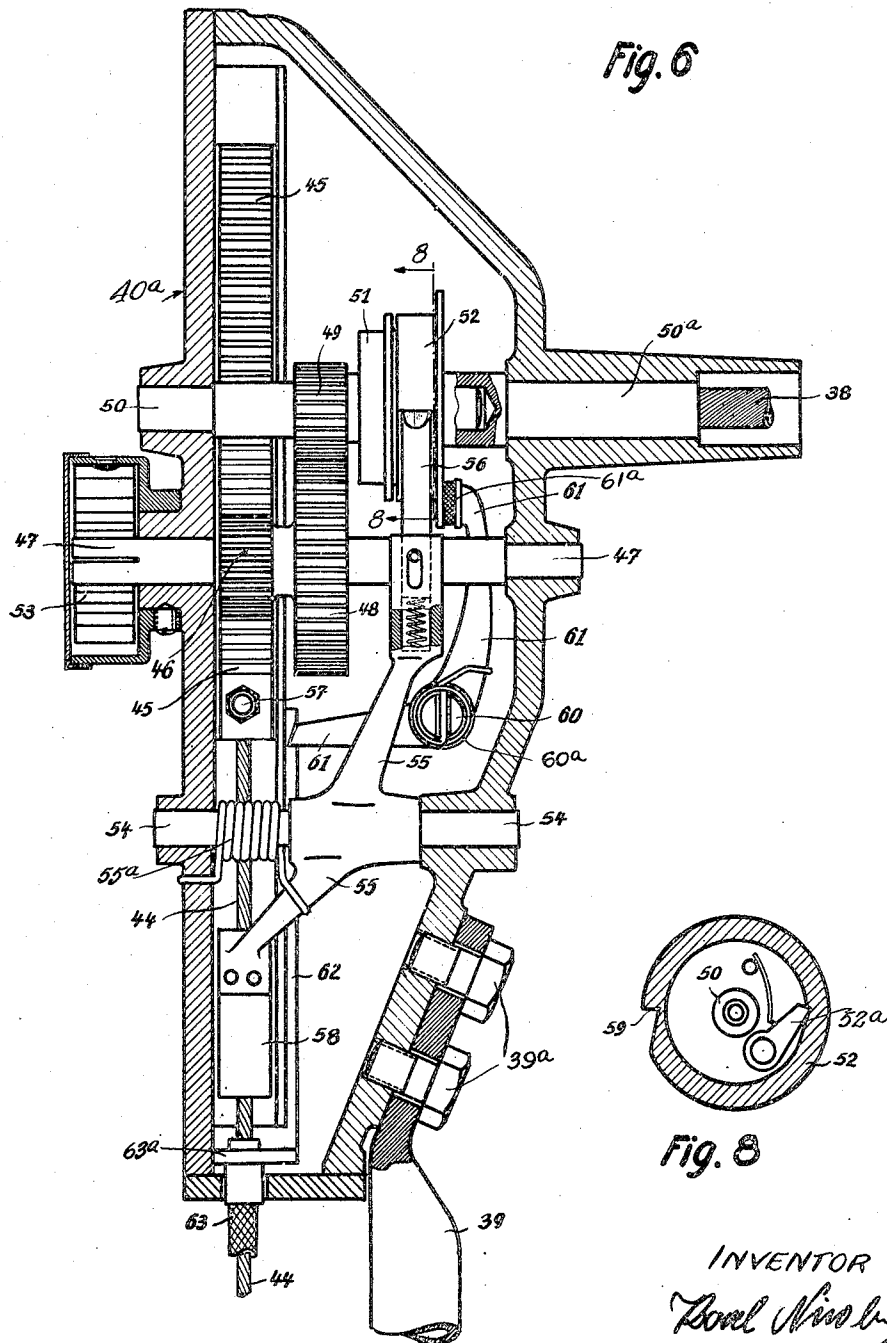
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Oct. 24, 1939.

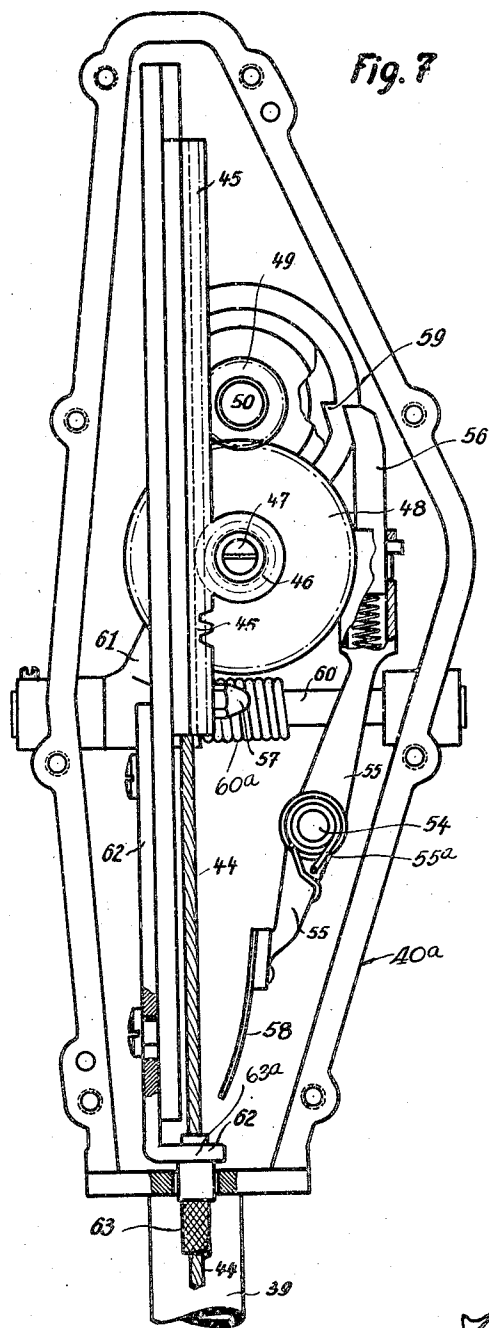
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HAND GUIDED MECHANICALLY DRIVEN INTERMITTENTLY OPERATED SEWING DEVICE

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6 Sheets-Sheet 4



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Oct. 24, 1939.

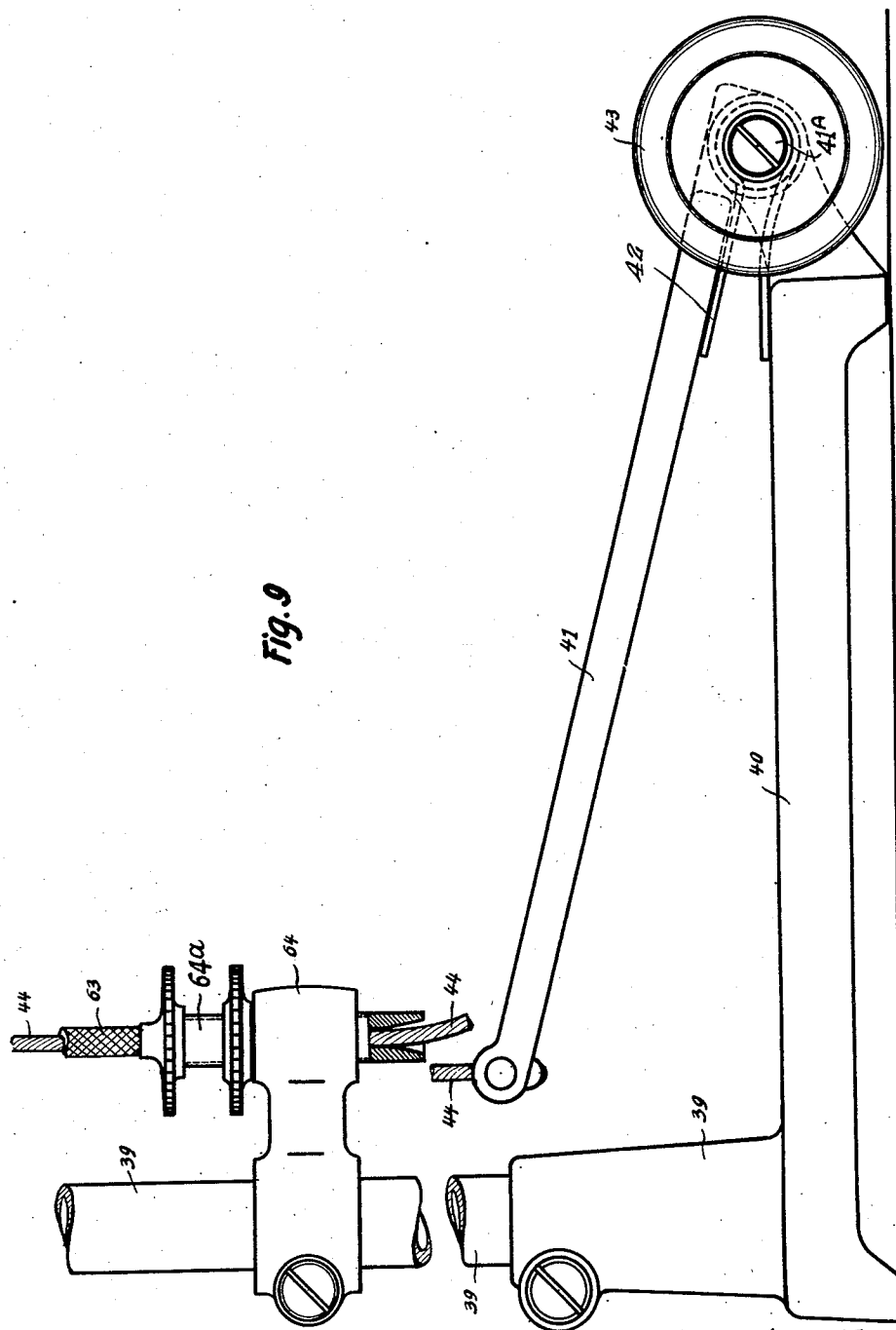
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Filed Sept. 8, 1936

6 Sheets-Sheet 5



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Oct. 24, 1939.

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Filed Sept. 8, 1936

6 Sheets-Sheet 6

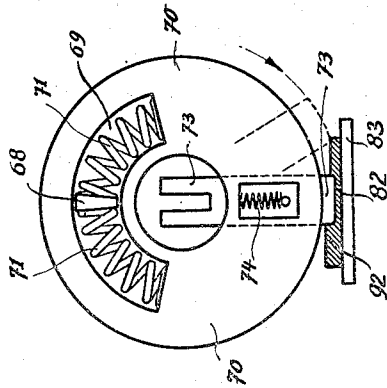


Fig. 11

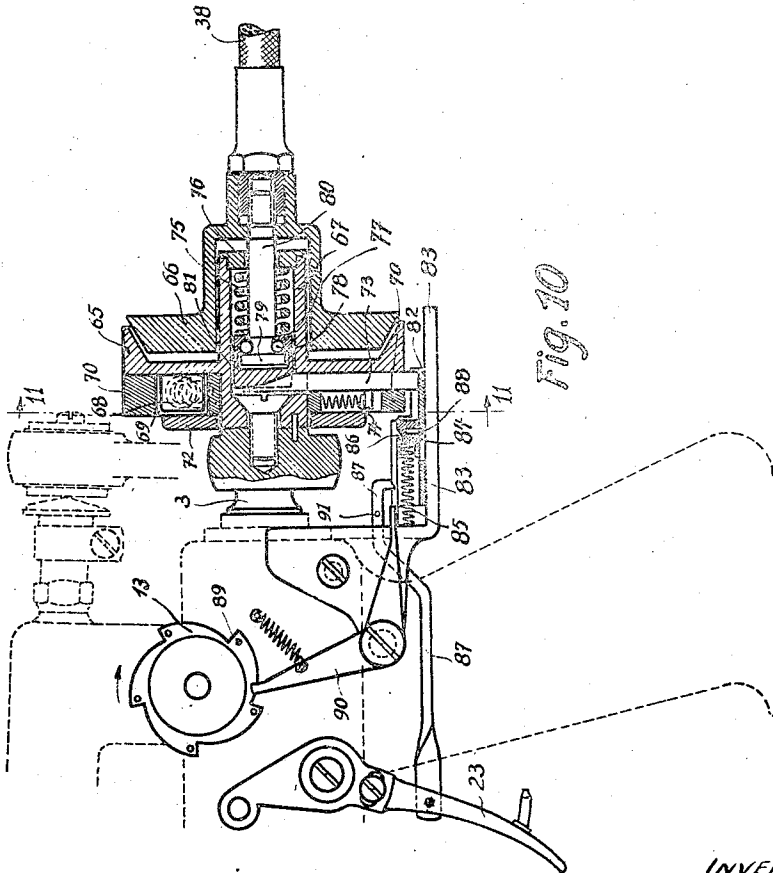


Fig. 10

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UNITED STATES PATENT OFFICE

2,176,977

HAND GUIDED MECHANICALLY DRIVEN
INTERMITTENTLY OPERATED SEWING
DEVICE

Karl Nicolay, Bielefeld, Germany

Application September 8, 1936, Serial No. 99,840
In Germany September 13, 1935

8 Claims. (Cl. 112-169)

The invention relates to sewing machines and more particularly to portable devices and to improvements in drives and controls therefor.

Manufacturers and other establishments handling textiles and cloth make it a practice to cut identical pieces of cloth simultaneously from a stack of many layers of fabric which are superimposed upon each other in orderly fashion. The pattern to be followed is generally placed on top and a cutting machine such as a band saw or knife is guided appropriately through the stack to sever the fabric along the lines desired. The waste is removed and the task then follows of fixing to each cut piece a label or marker identifying each piece for future use as regards such items as color, size, et cetera.

The labelling of the cut pieces is largely done by hand, requiring a great deal of time, and although attempts have been made to provide machines for this purpose, the machines have encountered various disadvantages such as those arising out of the fact that the machines are stationary and not movable. The cloth has to be carried manually or otherwise transported to and from the machines. Due to the fact that cutters and cutting tables generally take up much room and should be amassed as near as possible to the point where the uncut cloth is received, it will be observed that routing and handling cloth for marking purposes subsequently to the cutting process, present many problems including added expense and non-productive work. Then too, in the process of moving each cut piece individually into the marking machine, the neatly cut piles are badly deranged and the pieces ultimately reach the storage shelves in much disorder.

Other machines have been proposed, but such machines, some of which are nothing more than light wire hand staplers, may be classified generally as the lever type wherein the closing of levered jaws and the stitching operation is accomplished by the force of the gripping strength in a man's hand, squeezing together two appropriate handles. Obviously, such machines place a great physical burden upon labor and the results accomplished are irregular and uncertain.

Needle awls have also been employed wherein the supply of thread was carried on a bobbin in the handle of the awl. But all of these machines and contrivances fall far short of the demands and need of the trade for a machine which will not only greatly reduce the time, labor and waste factors, but will also provide a

better and more uniform product by reducing the human factor to a minimum.

One of the objects of the invention is to provide a device of the class described capable of securing two or more fabricated pieces together by means of a predetermined number of stitches or loops of thread or the like.

Another object of the invention is to provide a device of the class described which successively performs a predetermined cycle of operations for securing separate pieces of fabric together.

Another object of the invention is to provide a sewing machine capable of being carried, manipulated and controlled by one hand, all at one time or separately.

Another object of the invention is to provide a sewing machine having an improved means for handling or processing separate pieces of cloth without removing them from the rest of a pile in which they may be disposed.

Another object of the invention is to provide a portable sewing machine having an improved means for severing the thread after a series of stitches is completed.

Another object of the invention is to provide a sewing machine having a work feeder, a thread tensioner, and a thread cutter operated by a single control.

Another object of the invention is to provide a sewing machine, all the operations thereof controlled by one hand of the operator.

Another object of the invention is to provide a device of the class described which is simple in construction and operation, effective and uniform in its use, and inexpensive to manufacture and maintain.

These being among the objects of the invention, other and further objects will become apparent from the drawings, the description relating thereto, and the appended claims, these and other objects being contemplated.

Referring now to the drawings in general:

Fig. 1 is a side elevation partly in section of a preferred embodiment of the sewing device illustrating the invention.

Fig. 2 is an offset, horizontal section of said embodiment taken upon the line 2-2 of Fig. 1.

Fig. 3 is a horizontal plan of a limited portion of said embodiment taken substantially on line 3-3 of Fig. 1.

Fig. 4 is a cross section of a part of said embodiment taken on line 4-4 of Fig. 1.

Fig. 5 is the side elevation of said embodiment from the side opposite said elevation shown in Fig. 1.

Fig. 6 is a vertical section, partially in perspective, of one of the preferred embodiments of a drive means for the embodiment shown in Fig. 1, forming a part of the invention.

Fig. 7 is an elevation of said drive means taken on a plane perpendicular to the vertical section shown in Fig. 6.

Fig. 8 is a section on the line 8—8 of Fig. 6.

Fig. 9 is an elevation of a treadle means for actuating drive means.

Fig. 10 is an elevation partially in section showing another embodiment of the invention.

Fig. 11 is a section partially in perspective taken on line 11—11 of Fig. 10.

Although it will be recognized that a suitable power means for the portable sewing device may be mounted therewith on the same frame, it will be appreciated that separation of the power and transmission lightens the device to permit a larger freedom of movement and maneuverability. Consequently, the preferred embodiment of the invention is shown with the transmission and power mechanism separate from the sewing unit and a flexible shaft or drive member interconnecting them. The power means, therefore, is mounted upon a separate portable frame which can be moved from place to place quite easily along with the hand guided sewing device without disconnection of any of the parts. This mobility is highly advantageous whether the device is moved to or from the cutting tables and storage shelves, or used in conjunction with conveyors carrying the cut cloth along an assembly line or the like.

In general, the preferred embodiment of the invention comprises a hand guided portable frame provided with a needle carrying, reciprocating arm and a member cooperating therewith to stitch pieces of fabric together with thread. The needle arm is reciprocated by a drive member or flexible shaft which in turn is powered by a gear transmission generating a certain predetermined number of turns of the shaft when a treadle is moved a certain distance.

A feeder comprising cloth-gripping-arms is pivotally mounted on the device to move the cloth in a direction transverse to the movement of the needle arm and these arms are controlled relative to the reciprocations of the needle arm and also to the number of the reciprocations so that at the end of the series or cycle determined by the treadle movement, the feeder returns to its starting point.

This feeder is controlled by a trigger like lever located within finger reach of the handle. The feeder is relieved of its cloth gripping propensity when the trigger is squeezed. At the same time that the feeder is relieved of its tension, a pair of scissor-like levers are also actuated by the trigger to cut the stitch thread so that the sewing machine may be removed from the cloth processed by it.

This trigger also serves to control another function incorporated in the invention, namely, to relieve the thread of its tension-take-up during the first stroke of the needle in each series or cycle of stitches. Thus, an unthreading of the needle is avoided. After the first stroke, the tension is re-established automatically to assist in forming the subsequent stitches of any given series.

Referring now to the drawings in greater detail, the frame of the sewing device comprises a central portion 1, a work arm 2, and a pistol grip handle 1a preferably integral therewith.

A propeller shaft 3 is suitably journaled in the central portion 1 and the arm 2, and extends practically throughout their combined length, terminating at one end in a flexible drive shaft 3a and at the other end in a looper 7 more particularly shown in Fig. 2 for assisting in forming stitch loops. Intermediate its ends the propeller shaft 3, adjacent the pistol handle 1a, is provided with a bearing 3a whose axis is inclined to the axis of rotation of the shaft 3 so that a member mounted on said bearing and held against rotation would wobble. Such a member is the arm 4, which is held against rotation and in a universal reciprocatory-drive engagement with a stud 4a carried by the heel of the needle arm 6 which in turn is pivotally mounted on the central portion 1 at its toe as at 6a and carries a needle 5 at its end, positioned to co-operate with the looper 7.

The feeder comprises two spaced arms 8 and 9, upper and lower respectively, extending to a point proximate the needle 5 and looper 7 where they terminate, the lower one 9, in a bearing face 9a normally resting against the upper portion of arm 2, and the upper one 8 in a toothed face 8a cooperating with the bearing face 9a to grip and move any cloth placed therebetween. A guide finger 8b which cooperates with the horizontally wedge-shaped end of arm 2 is employed to aid in guiding the insertion of cloth between the co-operating faces 8a and 9a.

A third or stub arm 20 supports the arms 8 and 9, arm 8 particularly, for pivotal movement in a horizontal plane.

The arm 9 is terminally secured to the stub arm as by a bolt 22 while the arm 8 is pivotally mounted intermediate its ends on the stub arm 20 as by the bolt 19. The stub arm 20 in turn is mounted on the central portion 1 as at 6a and is predisposed to pivot, under the influence of the coil spring 25, in a direction tending to force a contact between said faces 8a and 9a.

The horizontal movement of the arm 8 is controlled as more particularly shown in Figs. 1, 3 and 4, by a spring 18 which tends to keep the arm inwardly at one limit of its pivotal movement. A toothed gear or lifting disc 13 rotated in one direction only by a spring pressed pawl 12 and a spring pressed latch 12a is provided to move the adjacent end of the arm 8 outwardly to its other limit through the use of inclined faces 14 and 15 which increase the overall axial length of the gear 13 when rotation thereof is effected, yet permitting the arm 8 under influence of the spring 18 to snap back to its first limit after a certain number of degrees of rotation have been accomplished. Dis-association of the parts is prevented by the actuated end of the arm 8 riding in a slot 17 in the bearing member supporting the gear 13.

The actuation of the gear 13 is directly linked relative to the rotation of the propeller shaft 3 through a cam 10, see Fig. 4, which is carried by the propeller shaft so that the turning of the propeller shaft 3 moves the arm 8 in direct relation with the number of reciprocations imposed upon the needle arm 6 by the shaft 3. The drive linkage between the cam 10 and the gear 13 is accomplished preferably by a lever arm 11 pivotally carrying both the pawl 12 and catch 12a, and pivoted itself to the central portion 1 of the frame as at 11a where a spring 11b urges the lever in a direction opposed by the cam follower 10a which in turn is carried by the other end of the lever so as to ride upon the face of the cam 10. This drive linkage is so constructed

that the cam 10 and follower 10a bear directly the load of positively turning or advancing the gear 13 rather than a spring or resilient member. Thereby, the danger of skipping a turn and the mechanism getting out of synchronism is reduced to a minimum.

Thus, with each rotation of the shaft, the lever arm 11 reciprocates a definite distance determined by the cam 10 and this distance is proportioned to span one tooth on the gear each stroke. However, it will be apparent that the effective distance of the cam and the number of teeth on the gear may be so apportioned or replaced by others as to bring about any other relation between the movements of arms 6 and 8 which upon occasion may be found to be desirable. In this way, a movement of the cloth laterally under the needle 5 is accomplished in a direct and positive relation with the reciprocation of the needle so that after a series or cycle of stitches the feeder and other operating parts are returned simultaneously to their respective starting positions in complete readiness for another series of stitches.

Up until now, consideration of the invention has been related to the parts driven directly by or from the power means. Turning now to the controls for the device, it will be observed that these are accomplished by a single lever 23 pivotally mounted upon the central portion 1 as at 23a where it is within finger reach of the handle 1a and resiliently urged away from the handle to a resting position from which it may be moved or manipulated like a trigger. Depression of the trigger operates the following controls.

The first control to be considered is the control of the feed arm 8 which is raised against the tension exerted by the spring 25 thereon so that cloth can be received between the arms 8 and 9.

In order to accomplish this the trigger 23 is provided with a cam arm 23b which moves against the lower arm of a crank lever 24 when the trigger is pulled. The crank lever 24 is mounted on the frame 1, as at 24a, and the upper arm thereof operates through suitable linkage 24b to raise the arm 8 to a point clearing the cloth clamping contact normally existing between the faces 8a and 9a.

In the particular embodiment illustrated, the linkage 24b comprises a leaf spring 24c, which is secured at one end to the stub arm 20 and carries at its other end an upstanding arm 24d. The leaf spring 24c is of sufficient stiffness to overcome the tension of the spring 25 and serves as a yoke between the arms 8 and 24d to operate them simultaneously, when lifted by the upper arm of lever 24, so that with the raising of the arm 8 to free the work, the upstanding arm 24d is also lifted to drive the lever 37 to its upper position to set the thread control for the next series of stitches, as more particularly described hereinafter.

A second control to be considered is the thread severer. Referring to Figs. 1 and 2, a pair of shear-like members is employed to cut the thread. One of the shear members 27 is pivotally mounted on the frame arm 2 at 27b, at a point 27a on the shear member 27 that is intermediate the place where the shear members are pivotally joined and the end of the member 27 remote from the cutting edge thereof. A push rod 26 connects said remote end of the member 27, with the trigger 23 at 26a, so that movement of the trigger by hand drives the outer

end of the member 27 to the left, as shown in Figs. 1 and 2, whereby the axis of the pivotal union between the shear members is rotated about the axis of the pivotal mounting 27a, so that the cutting edge of the shear member 27 moves into the path of the thread when the trigger 23 is pulled. The outer end of the other shear member 28 is supported in a slot 28a against movement in the direction of the movement of the shear axis, so that the cutting edge of the member 28 closes with the cutting edge of the member 27, when the cutting edge of the latter is moved to intersect the path of thread, as already described.

Thus, the shears are operated as a toggle which, when straightened on the pull of the trigger 23, moves the cutting edges towards the path of the thread and closes them across the path to cut the thread, and when the trigger 23 is released, the shears are returned to a position remote from the path of the thread so as not to interfere with the movement of the needle 5. Moreover, the cutting edges are so located below the stitching surface provided upon the upper face of the arm 9 as to cut the thread with sufficient length that the needle will not become unthreaded under operating conditions.

A third control accomplished by the trigger is to relieve the thread of its take-up tension so that in the next stitching or sewing operation of the machine, a sufficient loop of thread will be provided for the looper 7 to start the first stitch. It will be observed that a thread-reel 30 is provided in the handle 1a from which the thread is run through a tension unit 31 comprising a pair of spring pressed discs. From there the thread is run through suitable eyelets on both the arms 6 and 8 and finally to the needle 5 in a way that the relative movement of the arms 6 and 8 establishes a pull on the thread to tighten it at appropriate times against the anchorage afforded by the tension unit 31. In order to release this tension unit, a double crank lever 33 is mounted on the handle in a position to wedge the tension discs apart when the lever is depressed by a spur 34 provided on the trigger for that purpose. A spring 32 normally urges the lever 33 away from the tension unit so that the unit may feed from the lever in the manner herein-after described.

In order that the separation of the tension unit will be of sufficient duration, yet not extend beyond the first stitch, means have been provided to hold the lever 33 in its tension unit contacting position only for this certain determined period. This means comprises a double lever 36 pivotally mounted on the central portion 1, as at 36a, which catches and holds the other end of the lever 33 as by a tooth 36d when the trigger 23 is fully depressed. This latching relation is maintained and the lower end 35 of the lever 33 is held wedged between the discs of the thread tension unit 31 by a spring 36c, until such time as the lever 36 is moved clockwise. Then when the lever 36 is moved clockwise, the tooth 36d releases the upper end of the lever 33, and the spring 32 forces the end 35 of the lever 33 from between the tension discs to reestablish tension upon the thread.

This clockwise movement of the lever 36 is accomplished by the dog 37b on lever 37, when the arm 6 is moved downwardly the second time. In the embodiment illustrated, the lever 37 is pivotally mounted at the heel of the arm 6, as at 37a, and a coil spring 37c is stretched across said pivot point 37a and terminally secured to the arm

6 and lever 37 at points remote from the pivot point 37a, so that relative movement between the arm 6 and lever 37 will provide a snap action for the lever 37, which is limited by an extension 36b on the lever 36 disposed between the stops 37d that are carried by the lever 37 for that purpose.

When the lever 36 is in latching relation with the lever 33, as shown in Fig. 5, the lower of the stops 37d rides against the extension 36b to hold the lever 37 down, when the arm 6 moves downwardly. The spring 37c is thereby brought down past the pivot point 37a to snap the lever 37 down. However, the tension of the spring 37c is dominated by the tension of the spring 36c so that the lever 36 is not disturbed by the action or movement of the lower of the stops 37d along the extension arm 36b.

Presupposing that the lever 37 has been lifted by the trigger 23, as described, to its upper position where it is held by the snap action of the spring 37c with the lower of the dogs 37d resting against the spur arm on top of the lever 36, the lower of the dogs 37d slides along the lower edge of the spur arm to hold the lever 37 against being raised when the arm 6 is moved downwardly for its first stitch. With the lever 37 so held, the downward movement of the arm 6 will carry the line of force of the spring 37c below the pivot 37a, and the spring 37c will then snap the lever 37 to its lowermost position as limited by the upper of the dogs 37d engaging the top of the spur arm. Then, upon the upstroke of the arm 6, the dog 37b, having a suitably inclined face, rides up and over the upper end of the lever 36 with which it latches when the arm 6 approaches its upper limit. Thereafter, with the start of the next downward stroke of the arm 6, the lever 36 is moved to release the lever 33, and thereby free the tension unit 31 to reestablish tension upon the thread with the start of the second stitch.

From the description thus far it will be seen that the trigger 23 when depressed, cuts the thread and releases the feeder so that the cloth just stitched can be replaced. At the same time, the trigger releases the thread tension unit to enable sufficient thread to be drawn from the reel to make the first stitch safely after which the tension release is withdrawn automatically to enable the tension unit to assist in the formation of additional stitches. Consequently, the sewing device is controlled and handled by a single means under the control of one hand, with the other hand freed to handle the cloth, or other items, if necessary.

Turning now to a consideration of the means for supplying power to the portable sewing device, reference may be made to Figs. 6 to 9 inclusive. The drive for the sewing device described is effected by a foot-powered motor adapted to give a pre-determined number of revolutions upon actuation of a treadle.

The treadle means comprises a pedal 41 pivotally mounted to a base 40, as at 41A, where it is held in a ready position by the spring 42. Mobility of the base 40 is accomplished through wheels 43 so mounted as to engage the floor when the base is tilted in the wheels' direction.

A wire cable 44, working through a sheath 63, is terminally attached to the free end of the pedal and extends through a guide portion 64 which in turn is supported upon a standard 39 secured to the base 40. The upper end of the standard 39 supports a power transmission device comprising a rectilinear rack 45 mounted to slide in a cas-

ing 40A which is secured to the top of the support 39 as by bolts 39A. The rack 45 is secured to the other end of the wire cable 44 and operates to drive a step-up train of gears including a spool-gear counter-shaft 47 comprising a small gear 48 in engagement with the rack and a large gear 48 integral therewith. Upon the shaft 47 a spiral spring 53 is mounted and suitably anchored and tensioned to drive the gear 48 in a direction opposing the treadle actuated movement of the rack 45. In this way the spring 53 serves as a means to return the rack 45 after the treadle is released to its ready position.

The gear 48 upon the counter-shaft 47 is enmeshed with a smaller gear 49 upon a drive shaft 50 which carries a one-way clutch, more particularly shown in Fig. 8, comprising a spring pressed pawl 52A mounted relative to the drive shaft 50 on a member 51 and a notched clutch ring 52 mounted upon a driven shaft 50A which is axially aligned with the drive shaft 50. Connected to the drive shaft 50A is the flexible shaft 38, already referred to, which transmits the torque power to the propeller shaft 3 in the sewing device as already described.

Since one of the features of the invention is to provide just a certain number of revolutions for the propeller shaft 3, a means is employed to stop the driven shaft 50A after a predetermined number of revolutions has been effected by the rack 45 driving the train of gears described. For this purpose a latch lever 55 is provided and pivotally mounted on a shaft 54, journaled in the casing 40A, and carries a resiliently mounted latch member to and from a position engaging a stop notch 59 suitably provided upon the outer surface of the clutch ring 52. This lever is spring pressed as by spring 55A to normally retract from said engagement with the notch 59, but is advanced through the agency of a stud 57 which is provided upon the rack 45 and co-operates with a follower 58 carried by the latch lever 55 at such a point that when the rack 45 has moved a certain predetermined distance, a distance determining the number of revolutions desired, the stud 57 engages the follower 58 in a manner rotating the latch lever 55 whereby the latch element 56 engages the outer surface of the clutch ring 52 and drops into the notch 59 the next time it passes thereby. This stops further treadle actuation and consequently further revolutions. In this way a direct and positive control for the number of revolutions delivered by the driven shaft 50A is provided and the number of revolutions delivered by the driven shaft 50A is synchronized to coincide with the number of revolutions necessary to drive the sewing device through one cycle of its operation.

When the treadle is released, a means is provided to prevent a reverse movement of the driven shaft 50A which might upon occasion, take place due to the spring pressed friction of the pawl 52A acting against the inner face of the clutch ring 52. It will be appreciated that such means as a catch or anti-reverse gear and pawl may be used for this purpose, but in the preferred embodiment, a brake riding upon a face of the ring clutch 52 is provided and comprises a double lever 61 pivotally mounted as at 60 with a spring 60A pressing the brake block 61A carried by the lever 61 against the clutch ring 52. The other end of the lever 61 bears in the groove of a vertical guide bar 62 which supports the rack 45 and is secured to the wire cable sheathing 63 as at 63A. In order to release this brake

when the rack 45 is being moved by the treadle downwardly, the lever 61 is moved against the action of the spring 60A to a point where the brake block 61A disengages with the clutch ring 52. When the treadle is released for the return movement, the lever 61 is also released and the effort of the spring moves the brake block to engage the clutch ring 52 to again prevent a reverse movement thereof. This mode of operation will be better understood when it is observed that the sheathing 63 is rigidly carried relative to the guide member 64 by means of a turnbuckle assembly 64a and the upper end of the sheathing 63 is free to move relative to the casing 40a and carries with it the guide bar 62. When the sheathing 63 and cable 44 are in a resting position, the sheathing tends to shrink through an assumed curvilinear laxness and when the cable 44 is drawn taut by pressure on the treadle 41, the sheathing tends to lengthen and assume a rectilinear form. This differential between the reduced length of the sheathing 63 under resting condition and its increased length under the tension on cable 44, is sufficient to raise the bar 62 enough to release the brake 61a, the exact relationship of the parts to make this differential thoroughly effective being maintained through adjustment of the turnbuckle assembly 64a.

During the drawing downwards of the rack 45, the spring 53 is also tensioned. If the treadle 41 on downward pressure of the foot is subsequently released, it will be returned by means of its spring 42. The driving spring 53 can now untension, which draws the rack 45 back again and thus the whole gear as far as the braked coupling part 52 and the part of the shaft 50 corresponding to this part is set in movement in the reverse direction until the starting position is again reached.

Instead of the described foot lever interrupted operation a continuously acting driving force, for example a permanently running electric motor, can be used. For this type of drive, according to Figures 10 and 11, a friction clutch is provided which is arranged directly on the driving shaft of the pistol shaped sewing device and, upon the sewing device being put into operation, is adapted to deliver automatically a predetermined number of rotations of the driving shaft corresponding to the desired number of stitches.

In Figures 10 and 11, 65 denotes one clutch member fixed to the driving shaft 3 and 66 the associated clutch member fixed on the flexible shaft 38 and rotating permanently with the latter. The clutch disc 65 forms one piece with its shaft 67 which is hollow. On the free rear end of this hollow shaft 67, the clutch disc 66 is provided with a cone-shaped face at its circumference and is mounted freely for rotation. The clutch disc 65 is provided with a tapered face corresponding in shape to the sleeve of the clutch disc 66 and on the side lying opposite the latter has a projecting plate 68 which projects into a segment-like circular slot 69 (Figure 11) in a disc 70 mounted to rotate on the hollow shaft 67 and which abuts against the latter by means of two damping springs 71. 72 is a plate covering this disc 70 from the outside or securing it against being withdrawn. In the disc 70 there is provided a radial slide bolt 73 engaging a clutch release 81 and is under the influence of a compression spring 74 and also is tapered at its inner end where it projects into the hollow of the shaft 67.

A spring 75 is provided within the hollow shaft

67 of the clutch half 65, which abuts with one end against the ring 76 engaged in the hollow shaft 67 as a closure member, while its free end presses through a spherical seating 77 and the balls 78 on the circular collar 79 of the pin 80 fixed to the other clutch half 66. By means of the pressure of this spring, the coupling remains engaged and thus the two halves of the clutch are pressed together. Between the spherical seating 77 and the slide bolt 73 there is the clutch release member 81, already mentioned, which, like the seating 77, only rotates when the clutch is engaged and has outwardly directed front sides corresponding to the tapered end of the slide bolt 73 and only projects to a small extent through this forwardly projecting rib into the forked slot in the slide bolt 73.

For the release procedure the following device is provided:

A slide 82 is longitudinally displaceable on a carrier 83 fixed to the sewing device and is indirectly through a slide member 84 under the influence of a compression spring 85. This slide member 84 is provided with a notch 86 in which, on actuation of the trigger 23 of the sewing device, engages the corresponding hook-shaped free end of a rod 87 hinged to the latter lever and partaking of its movement. On release of the trigger 23, the rod 87 first of all carries the slide member 84 with it and only after the latter has gone back through a particular distance is its movement transmitted to the member 82 through the pin 88 projecting into a slot in the member 82 and the clutch engaged by release of the slide bolt 73. After the required number of stitches has been made, the upper arm of a cranked lever 90 elastically mounted on the carrier of the sewing device is engaged by one of the trips or pins 89 projecting sideways from a ring carried by the disc 13 which otherwise is the same as disc 13 shown in Fig. 1 and the lever 90 is moved until its free end comes out of the path of movement of this pin and can again snap back. The free end of its arm is thus moved upwards against a pin 91 of the rod 87 and its hook-shaped free end is lifted out of the notch 86 of the slide member 84 with simultaneous snapping forward of the slide member 84 and the member 82. For sudden stopping of the rotary movement of the shaft 3, when the slide member 84 is released, the member 82 is provided in the direction of rotation of the clutch with a leading cam surface and a trailing sharp step 92. The initial contact between the bolt 73 and the cam surface is shown in broken lines in Fig. 11, and as the bolt 73 is moved inward radially by the cam surface and comes to rest against the step 92, the bolt 73 cams against the inclined face of the clutch release 81 to force the clutch release to the right, as shown in Fig. 10. As the clutch release 81 is forced to the right, it compresses the spring 75 to release pressure on the clutch surfaces between the members 65 and 66, and strikes the ring 79 to force a quick separation of the clutch members 65 and 66 to disengage them. Back lash and shock created by the sudden and quick engagement and disengagement of the clutch members 65 and 66 is dampened for the sewing device by the springs 71, as already described, so that the sewing device may be brought into quick operation and stopped quickly without undue strain upon the moving parts.

Consequently it will be seen that the invention provides a portable sewing device controlled by one hand for securing two pieces of mate-

rial together by a predetermined number of properly spaced stitches and possesses such additional advantages as unified or centralized control of all of the functions of the device so that it is simple in construction and operation, effective and uniform in its use, and inexpensive to manufacture and maintain.

Accordingly, although certain preferred embodiments of the invention have been shown and described herein, it will be apparent to those skilled in the art, that various uses, modifications and changes may be made therein without departing from the spirit and substance of the invention, the scope of which is commensurate with the appended claims.

What is claimed is:

1. A hand guided mechanically driven intermittently operated machine for sewing tickets to lengths of material or articles associated in pairs comprising a pistol-shaped carrier, means for sewing, displacing the work and severing the sewing thread mounted on said carrier, a driving shaft mounted in said carrier and a trigger on said carrier adapted to put said sewing, displacing and severing means into operation and arranged so as to be within operative range of the hand holding said pistol-shaped carrier.

2. A machine as claimed in claim 1, comprising a horizontal arm forming part of said carrier, a stitching plate provided on said arm, a looper on said driving shaft, a pivoted needle arm forming part of said sewing device, an eccentric rod connected between said shaft and said needle arm for the transmission of movement to the latter and means for actuating said work displacing device from said shaft.

3. A hand guided mechanically driven intermittently operated machine for sewing tickets to lengths of material or articles associated in pairs

comprising a pistol-shaped carrier, means for sewing, displacing the work and severing the sewing thread mounted on said carrier, a driving shaft mounted in said carrier and a trigger on said carrier adapted to put said sewing, displacing and severing means into operation and arranged so as to be within operative range of the hand holding said pistol-shaped carrier, said work displacing means comprising a pair of clamping members.

4. A machine as claimed in claim 1, comprising a stitching plate beneath which said thread severing means is arranged.

5. A machine as claimed in claim 1, in which the handle portion of said pistol-like carrier is hollow and comprising in said hollow part a thread bobbin and a thread tensioning device.

6. A machine as claimed in claim 1, comprising a thread tensioning device, a trigger on said carrier and means operable by said trigger for acting on said thread tensioning device for untensioning the thread.

7. A machine as claimed in claim 1, comprising a thread tensioning device, a trigger on said carrier, a lever operable by said trigger at the beginning of a stitching period whereby to untension said thread, means for holding said lever in the actuated position during the formation of a stitch and means for automatically releasing said lever at the completion of a stitch.

8. A machine as claimed in claim 1, comprising a source of power for driving said driving shaft, a flexible shaft between said source of power and said driving shaft and means for connecting and disconnecting said shaft from said source of power so that said shaft is rotated for a period depending upon the number of stitches to be made.

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